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ABSTRACT

An instructor's manual and student activity guide on cabinetmaking are provided in this set of prevocational education materials which focuses on the vocational area of trade and industry. (This set of materials is one of ninety-two prevocational education sets arranged around a cluster of seven vocational offerings: agriculture, home economics, distributive education, health occupations, world of work, trade and industry, and office occupations.) The instructor's guide is organized into the following elements: title of activity, duration of activity (fifteen to eighteen days), activity goals, instructional objectives (thirteen), related vocational clusters, and activity implementation (description, materials needed, safety considerations, teacher preparation prior to class, during the class, follow-up activities, answer key to student check point activities, and masters for duplication [e.g., work record chart, wooden box plans, student check point sheets]). The student activity guide on the construction of a wooden box provides step-by-step instructions (narrative and illustrations) for completing each instructional objective (e.g., identify tools, identify grain direction, cut a combination rabbet-dado joint). At the end of each set of instructions is a student check point (evaluation activity). Occupational descriptions for a carpenter, cabinetmaker supervisor, cabinetmaker, cabinetmaker apprentice, and painter conclude the document. (JH)

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ED169302

CABINETMAKING

Kit No. 13

INSTRUCTOR'S MANUAL

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1978

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TITLE OF ACTIVITY

Kit No. 13, Cabinetmaking

DURATION

Main Activity – 13 to 15 days
Follow-up Activity – 2 to 3 days

GOALS

The student will gain manipulative skills with certain tools.

The student will obtain knowledge about the use of containers and their importance in our industrialized society.

The student will acquire habits of keeping records of time and materials used.

The student will develop further an ability to follow directions.

The student will become familiar with:

- wood as a building material
- shop safety practices
- mass production processes used in industry
- sanding, gluing, jointery, and finishing
- writing and/or giving reports

INSTRUCTIONAL OBJECTIVES

Given a chart and necessary instruction, the student will keep a record of time spent, jobs done, and materials used.

Given a set of tools, the student will identify each tool.

Given a board (piece of wood), the student will be able to identify which way the grain is going and name each side of the board.

Given a set of criteria, the student will decide on a use for his/her box (container).

Given 6 pre-cut boards, the student will decide on which side of the box the boards will go and which side of the board will face the inside of the box.

After instruction on how to use the block plane, the student will apply this to the cutting of a chamfer on the edge of a piece of wood.

Given plans and directions, the student will be able to cut a combination rabbet-dado joint.

The student will sand the six boards using given instructions.

Given materials and instructions, the student will assemble the box by means of gluing and clamping.

By using a marking gauge and saw, and after proper instruction, the student will cut the box to make a lid for an opening.

The student will be able to distinguish between a stain, varnish, and oil, and be able to apply the proper finish to his/her box.

The student will attach hinges and hasps to his/her box, after marking where to attach them and being given proper instruction on how to attach them.

After having completed the box and having been given the necessary instruction, the student will give either an oral or written report on his/her favorite and/or non-favorite aspects of this activity (construction of the box), with emphasis on mass production of this object and his/her preferred phase of construction, if limited to only one.

VOCATIONAL CLUSTERS

You can incorporate Office Occupations and Distributive Education into this activity.

ACTIVITY IMPLEMENTATION

A. Description

In this activity the student will be learning the use of tools and enforcing manipulative as well as mental processes. In the preparatory stages, the student will be introduced to the use of containers in our industrialized society. During the construction process, the student will be asked to keep a record of the materials used, time worked, and jobs performed. Incorporating all of these activities into one unit will help the student to be exposed to a variety of learning experiences and to attain the goals previously stated. A written and/or oral report will be given by the student to

help relate this activity to mass production.

B. Safety

All of the tools used by the student in this activity will be hand tools. The greatest caution should be expressed in the use of the chisels, backsaws, and block planes. Safety and proper use for all tools should be emphasized at all times.

C. Materials

1. Audio Visual Equipment
   Overhead projector
2. Technical Equipment

   5 marking gauges
   5 trysquares
   Chisels (3/8 in. – .9525 cm)
   5 block planes
   25 wooden hand screw clamps
   5 small screw drivers
   10 small hammers
   5 backsaws
3. Expendable Supplies

   You will need to figure how many board feet of material (lumber) you will need for each student in your class to construct a box. Approximately 4 1/3 linear feet of wood 6 inches (15.24 cm) wide and planed to ½ inch (1.27 cm) thick or approximately 2 board feet of 6 inch (15.24 cm) wide x 1 inch (2.54 cm) thick wood will be needed for each box. This depends entirely on how your lumber is bought – see *Wooden Box Plans* for dimensions.

   Besides wood, you will need:
   Hinges (2 per box per pupil – should come with screws)
   Hasps (1 per box per pupil)
   1 or 2 wood stains (rub on type, water base)
   Varnish and solvent to clean brush
   Oil finish (water base)
   5 paint brushes (¼ inch – 0.635 cm)
   Paint brushes (1 inch or 1½ inches – 2.54 cm or 3.81 cm)

   These materials you will need to supply yourself:
   Glue – water base for easier cleaning
   Sandpaper – 3 grits of varying degrees, possibly 120, 150, and 220
   Several nails to make holes to ease inserting the screws when putting on the hinge and hasp.
   Steel wool to smooth between coats of varnish
   Rags for applying stains or oil finish
   Sanding blocks
   Some scrap pieces of wood

   You will also need access to a table saw or some other type of power saw and planer.

D. Preparation Prior to Class

Lumber must be obtained, planed to ½ inch thickness, and cut into pieces for each student. This should be done on power machinery since it would take too long for each student to do it by hand. All tools in this activity are hand tools, and the student could be frustrated trying to saw all six pieces by hand. For each box you will need:

4 pieces 5 inch x 10 inch x ½ inch (12.7 cm x 25.4 cm x 1.27 cm)lumber
2 pieces 5 inch x 4½ inch x ½ inch (12.7 cm x 11.43 cm x 1.27 cm) of lumber

Try to have the grain of the wood go horizontally around the box. (You may try to use plywood for this exercise.)

Refer to units on industry, containers, or mass-production that are covered in the text available to your students. You could possibly have them read this as an introduction.

Have enough "WORKSHEETS" run off and assembled for each student. You may need several extra copies of the CHECK POINTS because each student must get a certain percentage of the questions right or re-do the steps.

Set all necessary materials out for the student. Cut the sandpaper into quarters.

Stack all pieces for the box top, bottom, front, and back in one stack and the ends of the box together. (NOTE: Label these stacks by the dimensions of the boards.) Also, decide how you would like the class to be divided into groups of 5.

Read the Student Learning Activity Guide thoroughly so that you will be able to answer any questions you might be asked and so you will know what is expected of you.

E. During Class Session

Be available to the students at all times. This may be individualized instruction, but the students will be directed to see the teacher several times throughout the programmed text. Some of these times will be checkpoints at which you must decide if the student may go on to the next step by examining his/her work.

Watch carefully for all safety precautions while the students are working.

You could give additional information to that provided in the Learning Activity Package for the student – anything that deals with the topics of mass production, containerization, or industry.

F. Follow-up Activities

1. Have students fill out VIEW Fact Sheet.
2. Have students give oral or written report (your decision) on their favorite and non-favorite aspects of the construction of the box. They should also include what they would like or dislike about the box construction if they were limited to one phase of production (as in mass production).
3. Have a class discussion on various career possibilities related to this activity. (Here again the student's text may be helpful.)

ANSWER KEY

Checkpoint 2

Trysquare	D
Chisel	B
Marking gauge	A
Backsaw	C

Checkpoint 3

Block plane	C
Screwdriver	A
Hammer	B
Wooden hand screws	D

Checkpoint 4

A. 1. Face
2. End
3 Edge

B.

Checkpoint 7

Parts:

1. a. blade
b. lever cap
c. bottom
d. lateral adjustment lever
e. adjusting nut
f. finger rest

2. to plane end grain

Checkpoint 9

Be careful in picking up and holding the block plane correctly. The blade is very sharp. Be sure that nothing is loose.

Checkpoint 10

1. to strengthen the boards where they are glued and to resist stress
2. Match:

Rabbet	B
Dado	C
Combination	A

Checkpoint 12

1.
2.

Checkpoint 13

1. to hold the boards tightly together while the glue is setting
2. used as a fastener or adhesive to join the boards together
3. Dampen a cloth and carefully wipe it off or let it dry and chip it off with a chisel.

Checkpoint 15

1. C
2. A
3. B

MASTERS FOR DUPLICATION

1. VIEW Fact Sheet
2. Student Workbook:
Work Record Chart
Checkpoint 2

Checkpoint 3
Checkpoint 4
Wooden Box Plans
Close-up of Joint
Checkpoint 7
Checkpoint 9
Checkpoint 10
Checkpoint 12
Checkpoint 13
Checkpoint 15

VIEW FACT SHEET

NAME _____ CLASS _____ OCCUPATION _____

A. List the advantages (good points) of this occupation (job).

B. List the disadvantages (bad points) of this occupation (job).

C. List three things you should know to do this occupation (job).
   1.
   2.
   3.

D. What type of education should you get to be prepared (do) for this occupation (job)?

E. What courses must you take to go into this occupation (job)?

F. What do you think your future in this occupation (job) will be?

G. What wage can you expect in this occupation (job)?

H. What are the working hours of this occupation (job)?

I. To learn more about this occupation (job), write to:

J. Using a scale of 1 to 5, circle the number that measures your interest in this occupation (job) as a possible career.

I don't like it. ← 1 2 3 4 5 → I like it.

STUDENT WORKBOOK

Kit 13, Cabinetmaking

WORK RECORD CHART

DATE	TIME SPENT	TYPE OF JOB	MATERIALS AND TOOLS

CHECKPOINT 2

Match the following tools with their names.

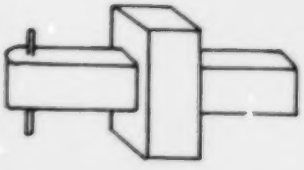
Trysquare _____

Chisel _____

Marking gauge _____

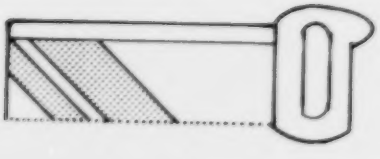
Backsaw _____

A

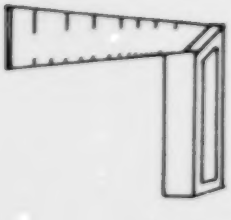


B

C



D



CHECKPOINT 3

Match the following tools with their names.

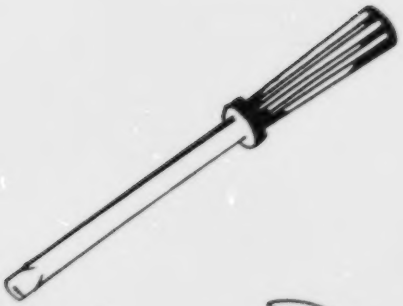
Block plane _____

Screwdriver _____

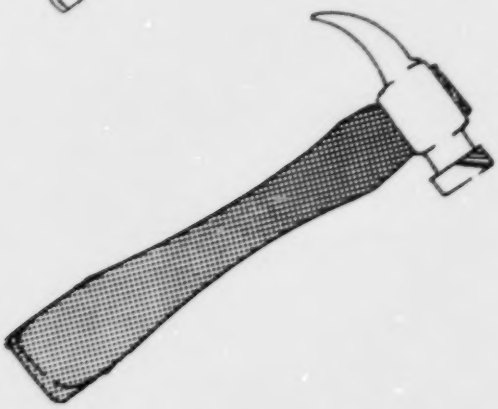
Hammer _____

Wooden hand screws _____

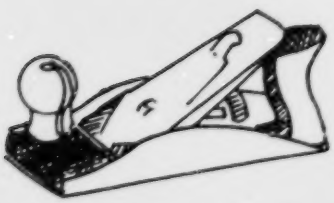
A



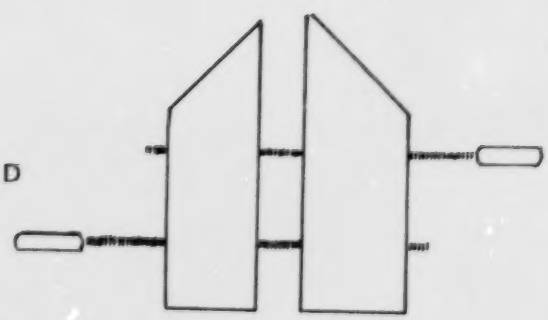
B



C

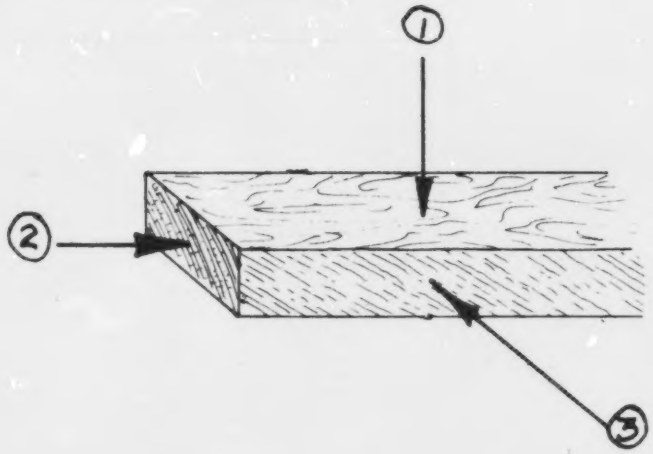


D

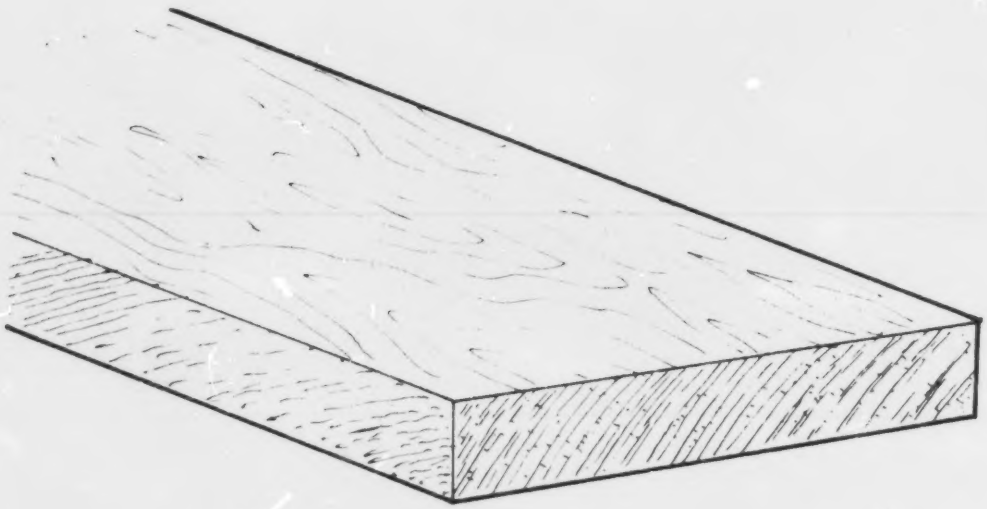


CHECKPOINT 4

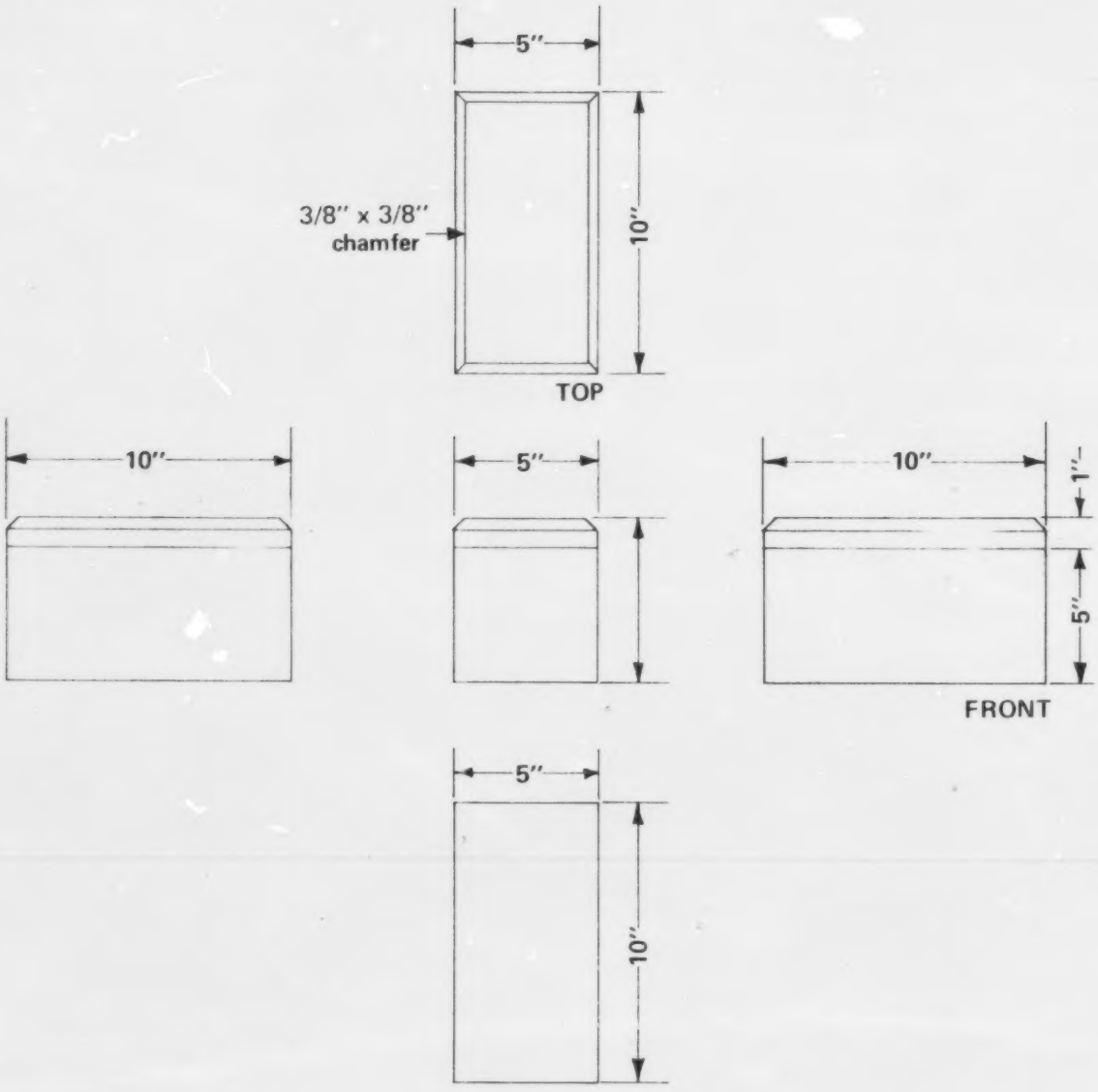
A. Name each side of this board.



B. Draw an arrow in the direction of the grain on this board.



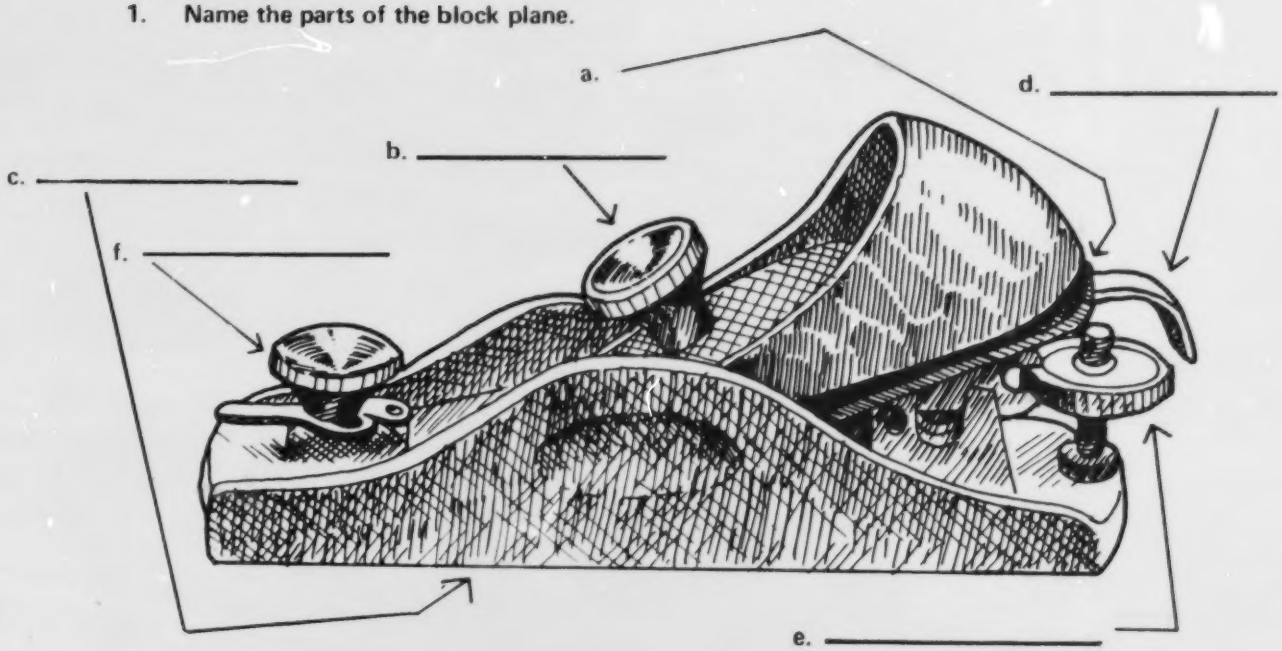
WOODEN BOX PLANS



CLOSE-UP OF JOINT
USED IN WOODEN BOX

CHECKPOINT 7

1. Name the parts of the block plane.



2. The main purpose of the block plane is: _____

_____

_____

_____

BLOCK PLANE

CHECKPOINT 9

What safety precaution must be taken when using a block plane (or any plane)?

_____

_____

_____

_____

CHECKPOINT 10

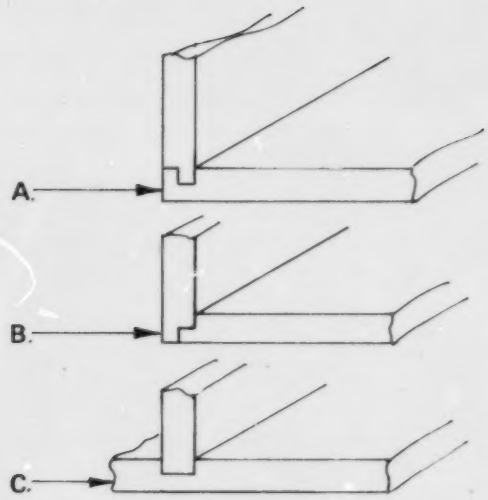
1. What is the purpose of a joint?

2. MATCH:

Rabbet _____

Dado _____

Combination Rabbet-Dado _____

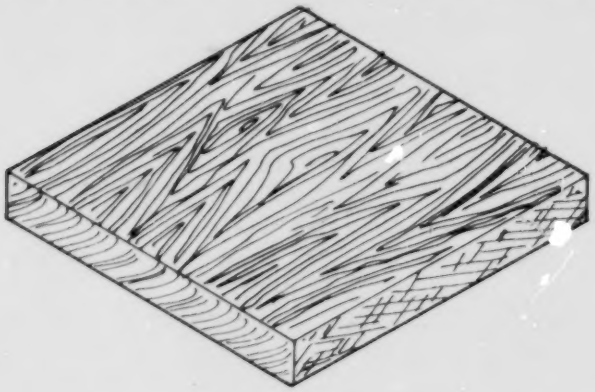


CHECKPOINT 12

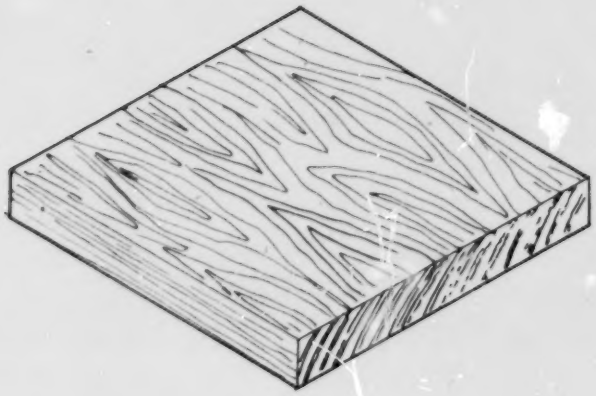
SANDING

Draw an arrow in the direction you would sand these pieces of wood:

1.



2.



CHECKPOINT 13

1. What is the purpose of using clamps? _____

_____

_____

2. What does glue do? _____

_____

_____

3. How do you get rid of excess glue? _____

_____

_____

CHECKPOINT 15

MATCH:

A. Stain

B. Oil

C. Varnish

1. _____ Finish of a resin mixed material, brushed on

2. _____ Develops color on a surface and accents the grain pattern

3. _____ Hand-rubbed finish

CABINETMAKING

Kit No. 13

STUDENT
LEARNING ACTIVITY GUIDE

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State Department of Education
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CABINETMAKING

INTRODUCTION

Containers of every shape and size imaginable have become commonplace in today's society. These containers are used for everything from attracting the customer's attention to serving as a means of storage and transportation.

The economic process which involves all the operations that affect the movement of goods from producer to consumer is called marketing. Packaging, or placing goods in containers, plays a major role in the marketing process. Many factors are considered in the design of a container for packaging products. The designer must ask:

What are the contents of the container?

How will the container be transported?

What type of material should it be made from?

What abnormal conditions might it be exposed to?

How will the container be fastened together?

What is absolutely necessary to protect the product under normal circumstances?

Besides all of these questions, the design of the container must be easy to unitize (put several containers together for further packaging, or storage) and, if the container will be used as a presentation to the consumer, should enhance the value of the product.

Many types of materials are used in the packaging industry. Wood has been used for years to make crates for the shipping of goods. Homes, stores, and offices use wooden containers because of their utility as well as their beauty.

This unit will involve the construction of a wooden box which you will be able to keep for yourself. What the box will be used for will be your decision, but you must remember the considerations previously mentioned.

GOALS

The goals of this unit are to help you do the following:

1. gain manipulative skills with certain tools
2. obtain knowledge of the use and role of containers in our industrialized society
3. acquire a habit of keeping a record of time and materials you use
4. develop ability to follow directions
5. become familiar with:
   - wood as a building material
   - safety practices
   - mass production processes in industry

DIRECTIONS

It is extremely important that you take note of all safety measures mentioned throughout the manual. This booklet is designed for individualized instruction, but please feel free to ask your instructor if you are uncertain about something. Be sure to place all tools you are not using back where you got them so others may use them.

FOLLOW ALL DIRECTIONS COMPLETELY and fill out each checkpoint before continuing to the next step. IF A PROBLEM DOES ARISE, CONSULT YOUR INSTRUCTOR.

MATERIALS

Before you start on your box, you will need to get:

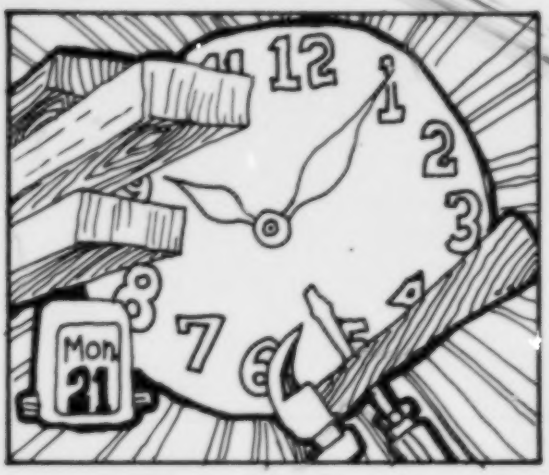
1. materials from teacher for constructing box
2. pencil, ruler, paper to write any notes

Instructional Objective 1

Given a Work Record Chart and an example to follow, the student will keep a record of time spent and include the job done and materials used.

STEP 1 – Turn to page 1 in your "WORKBOOK."

STEP 2 – Look at the title of this page – "WORK RECORD CHART."



STEP 3 – Keep a daily record of materials, date, type of job done, and time you spend on it.

On June 29, at about 3 o'clock, I built a doghouse out of four two by fours that were eight feet long.

I was through about 5:30 that afternoon.

It was a small dog house for a small dog.

WORK RECORD CHART

DATE	TIME SPENT	TYPE OF JOB	MATERIALS & TOOLS
6/29	2½ hrs	DOGHOUSE	2x4-4 SAW & HAMM

STEP 4 – Use the example above to help you.

Check Point

Keep this chart each day and hand in at the end of the activity. Ask your instructor to look at it every two or three days.

Instructional Objective II

Given a set of tools, the student will identify each tool, becoming familiar with the tools for this activity.

STEP 1 – Take the tools provided for this activity and place them on the table.

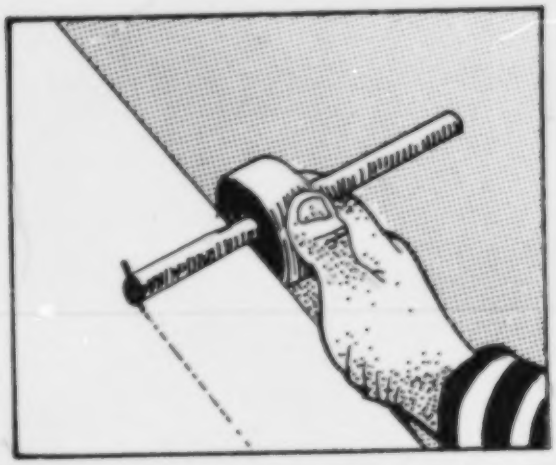
STEP 2 – Take the four tools pictured above and separate them from the other tools.

STEP 3 – Pick up the trysquare. Note the parts: handle and rule.

A. The trysquare has two purposes:
   1. Serves as a guide when laying out lines across the wood grain
   2. Tests to see if adjoining sides are square (at 90° to each other)

When using this tool, make sure the handle is flush with the piece of wood it is placed against.

SAFETY: This is a heavy and tough tool, please use it for the above 2 purposes and handle it carefully.



STEP 4 – Pick up the marking gauge. Note each part as pointed out in the above picture.

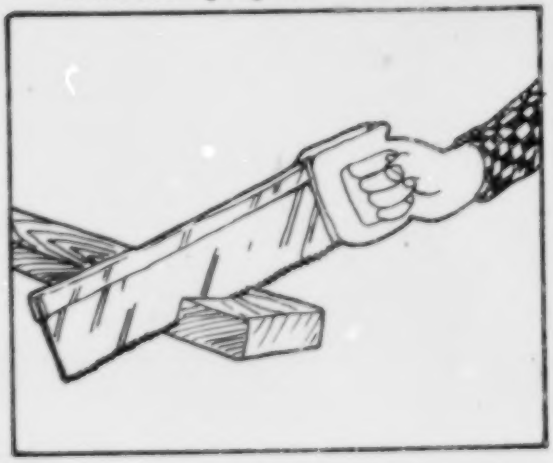
1. The marking gauge is used to mark lines parallel to the edge of the wood it is held against.
2. To use: Tip the gauge away from you until the spur touches the wood. Push away from you making a thin, knife-like line on the wood.

SAFETY: The spur is sharp--be careful!

STEP 5 – Pick up the chisel. Note the sharp edge on the blade. (DO NOT cut yourself with this.) The chisel is the simplest form of cutting tool and is used for cutting joints, trimming, and smoothing.

1. You will see the end of the chisel is ¼ inch (0.635 cm) wide; therefore, this is a ¼ inch (0.635 cm) chisel.

SAFETY: The blade is extremely sharp. Never put any part of your body in front of the cutting edge of the chisel.



STEP 6 – Pick up the backsaw. NOTE: Saws are used to cut boards to width, length, and shapes.

1. The width of the cut made by the saw tooth is called the kerf.
2. This is a backsaw. It has smaller, finer teeth and rigid back for a smoother cut.

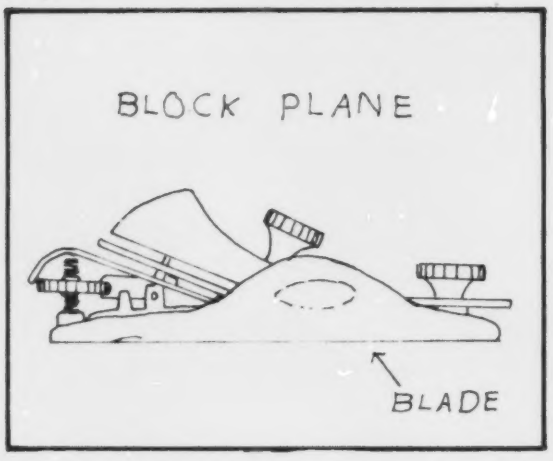
SAFETY: The saw teeth are like small chisels and are very sharp. Be careful not to cut yourself or stick any part of your body in the path of the saw.

Check Point

Turn in your workbook to Checkpoint 2. Match the answers. DO NOT look back to this manual. After you answer all questions, THEN AND ONLY THEN, look back to the manual for the correct answers. If you missed more than one, go back to Number 2 and obtain another copy of Checkpoint 2 from your teacher. If you only missed one or had all answers correct, go on to the next objective.

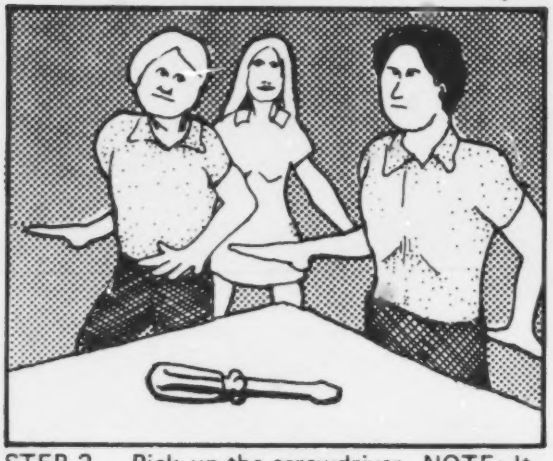
Instructional Objective III

Given the remaining four tools pictured below, the student will separate them from the other tools, identify each tool and its purpose.



STEP 1 – Pick up the block plane. NOTE: The blade is similar to that of a chisel, except wider, and you are given more stability by the holding device. You will use this to make a decorative edge. It is small enough to hold in your palm.

SAFETY: There is a very sharp edge on the block plane. Do NOT run your fingers along the plane iron blade edge.

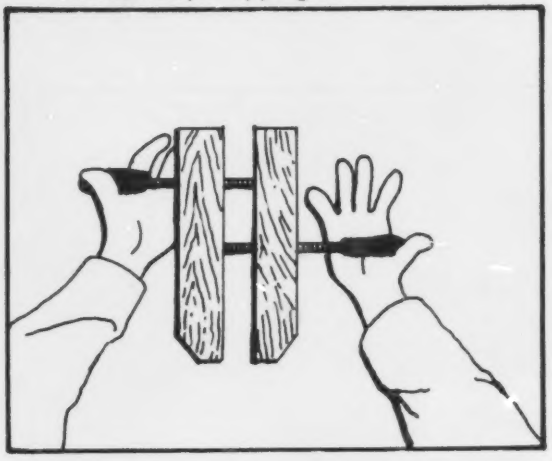


STEP 2 – Pick up the screwdriver. NOTE: It is used to turn screws into the wood. You will use it to attach the hinges and hasps. The edge is inserted into the groove in the top of the screw.

SAFETY: Though the end of a screwdriver is dull, it can be dangerous if not handled carefully. DO NOT push it toward the body.

STEP 3 – Pick up the hammer. NOTE: It is primarily used to drive and withdraw nails.

SAFETY: Care should be taken not to hit your hand or any other part of your body when you are driving nails. Hold the hammer securely to avoid accidentally dropping it.



STEP 4 – Pick up the wooden hand screws. NOTE: The 2 handles screw in and out to open or close the width of the clamp. It is mainly used to hold pieces of wood together tightly while the glue sets.

Check Point

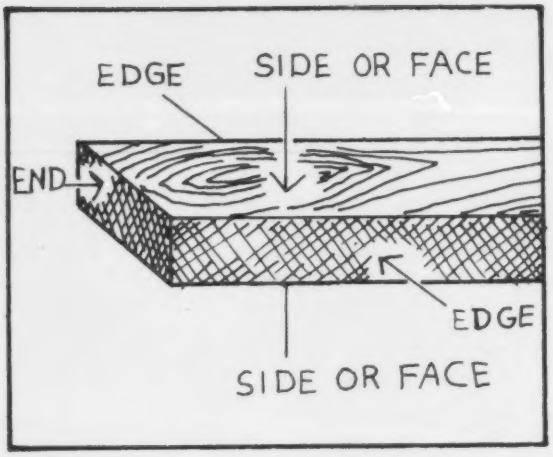
Turn in your "WORKBOOK" to Check Point 3. Answer all questions as before with this manual closed. Check your answers with this manual and talk to your instructor if you miss more than one answer. Go through the steps again and obtain another Checkpoint. Otherwise, continue on to Wood Terms.

Instructional Objective IV

Given a piece of wood, the student will be able to identify grain direction and name each side of the board.

STEP 1 – Each board has six sides.

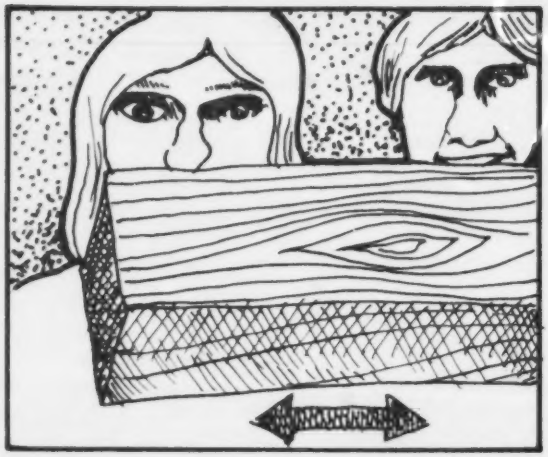
STEP 2 – Pick up one of the boards you will use to construct your box.



STEP 3 – Match each name of a side of your board with the names of the sides on the board pictured above. NOTE: Each opposite side of the board shares the same name.

STEP 4 – Look at the board closely. NOTE: There will be a pattern formed on the wood caused by the growth of the tree.

STEP 5 – The illustration below shows how the grain is running on this piece of wood:



STEP 6 – Use the above illustration to help you identify which way the grain is going on your boards. (If you are having trouble with some, consult your instructor.)

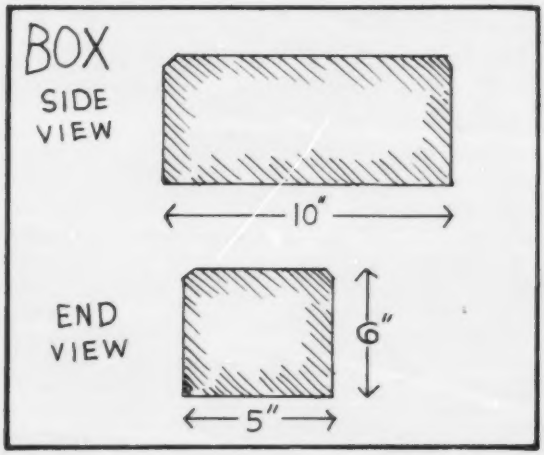
Check Point

Turn to Checkpoint 4 in your "WORKBOOK." Answer all questions with this manual closed. Use the manual to check your answers. If you miss more than one answer, go back to the first step and try again; otherwise, continue.

BOX USE

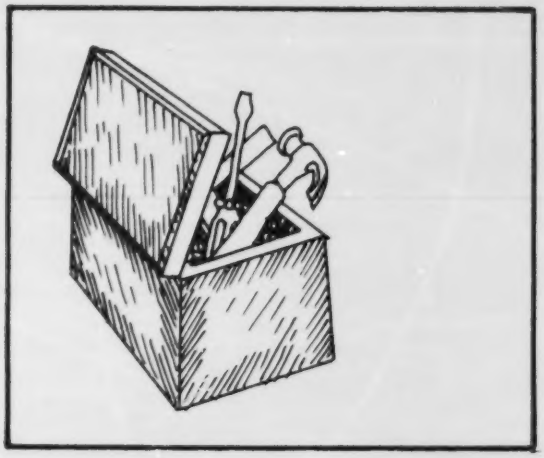
Instructional Objective V

Given a set of criteria, the student will decide on a use for the box.



STEP 1 – Read the following description:

1. The finished box will be 6" tall x 10" long x 5" wide (15.24 cm tall x 25.4 cm long x 12.7 cm wide). See wooden box plans, page 5 in your workbook.
2. There will be a hasp to close and secure the lid.
3. The lid will be 1 inch (2.54 cm) tall on all sides.
4. One of 2 types of finishes can be applied:
   a. Oil--which is more decorative than usable. It is used mostly on furniture or items not used ruggedly.
   b. Varnish--water-proof, more durable, protects the wood from scratches somewhat better.



STEP 2 – Consider these suggestions:

1. Handbag (add a handle)
2. Tackle box
3. Small tool holder
4. Knick-knack holder
5. Stationery box
6. Picture holder

BE CREATIVE: FIND SOMETHING USEFUL FOR YOUR BOX.

Check Point

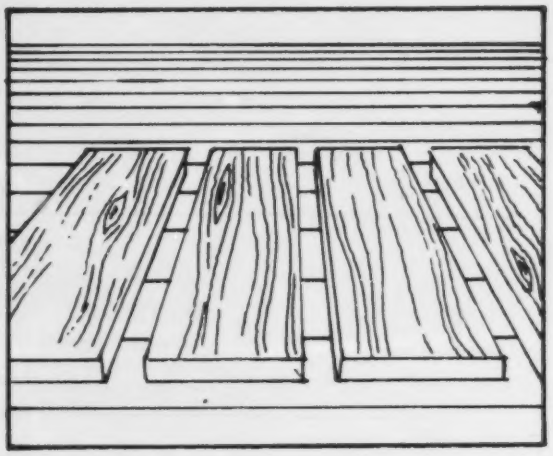
At the bottom of your Work Record Chart, write: "My box will be used as _____ _____ .(fill in the blank)

DECIDING WHICH SIDE TO USE

Instructional Objective VI

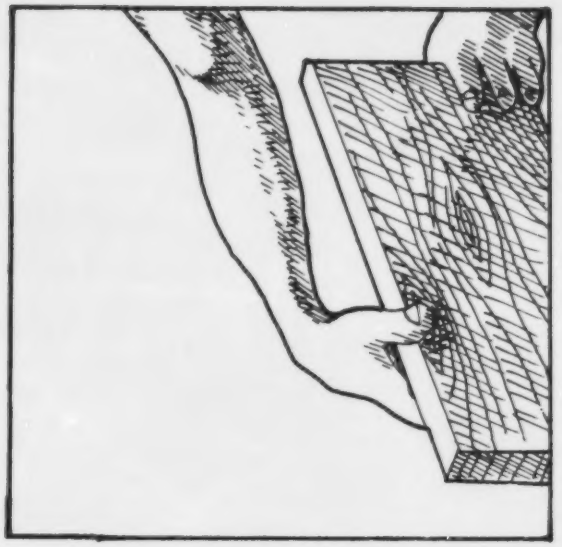
Given 6 pre-cut boards, the student will decide on which side of the box the boards will go and which side of the board will face the inside of the box.

STEP 1 – Pick up the 4 pieces of your wood that are the same size.

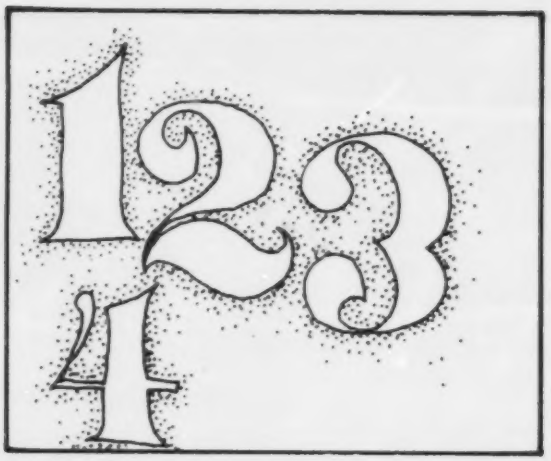


STEP 2 – Look at the grain pattern of each board.

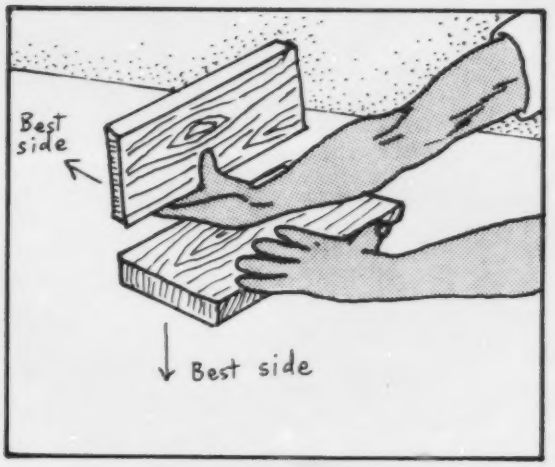
STEP 3 – Decide which side of each board you like the best.



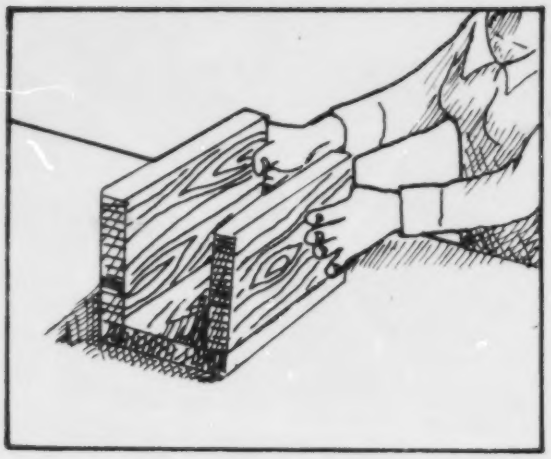
STEP 5 – Place the number 4 board, with the side you like best down, on the table.



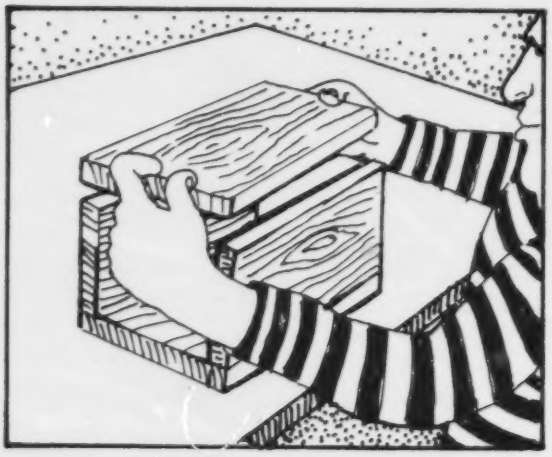
STEP 4 – Of the sides you like best, decide which of these you would number 1, 2, 3, and 4 (with 1 being the board with grain pattern you like the most).



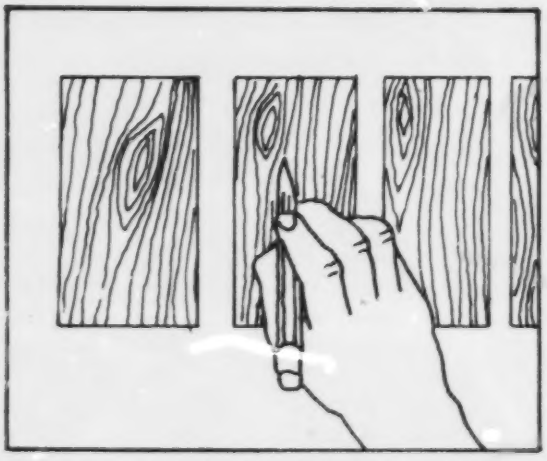
STEP 6 – Take the number 3 board and place it on the back edge of the number 4 board with the best side away from you.



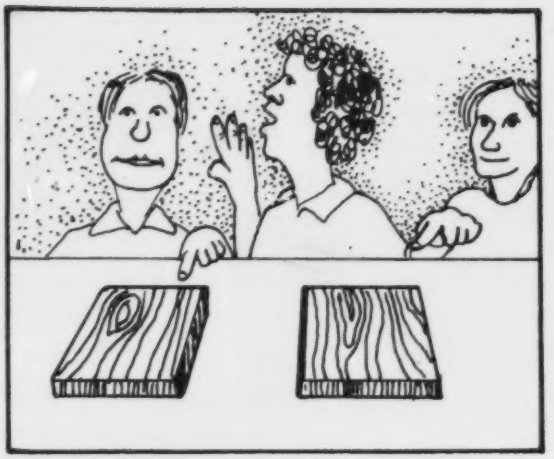
STEP 7 – Now, place the number 2 board along the front edge of the number 4 board (opposite the number 3 board) with the side you like best toward you.



STEP 8 – Take the number 1 board with the best side up and place it on top of the number 2 and 3 boards to form the outside of the box.



STEP 9 – Mark the boards 1, 2, 3, and 4 with pencil on the outward side of the board.



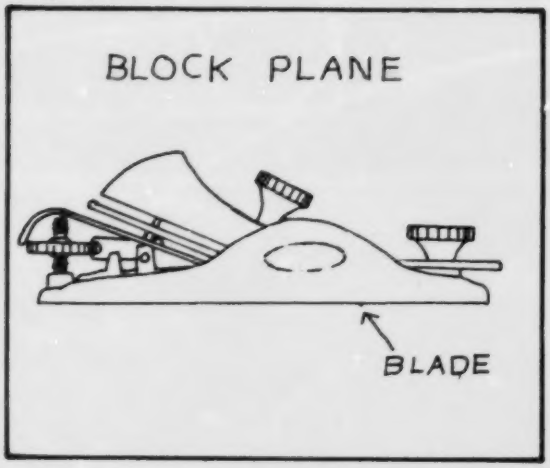
STEP 10 – Take the 2 ends of the box and determine which sides you like best. On the face of one board (on the side you like best), write 5 in pencil and write 6 on the other board. These boards will fit in either end after you have cut your joints.

Check Point

Make sure your box has six sides -- all boards numbered: 1, 2, 3, 4, 5, and 6. Also, be sure that the numbers are on the face of the board that you like the best.

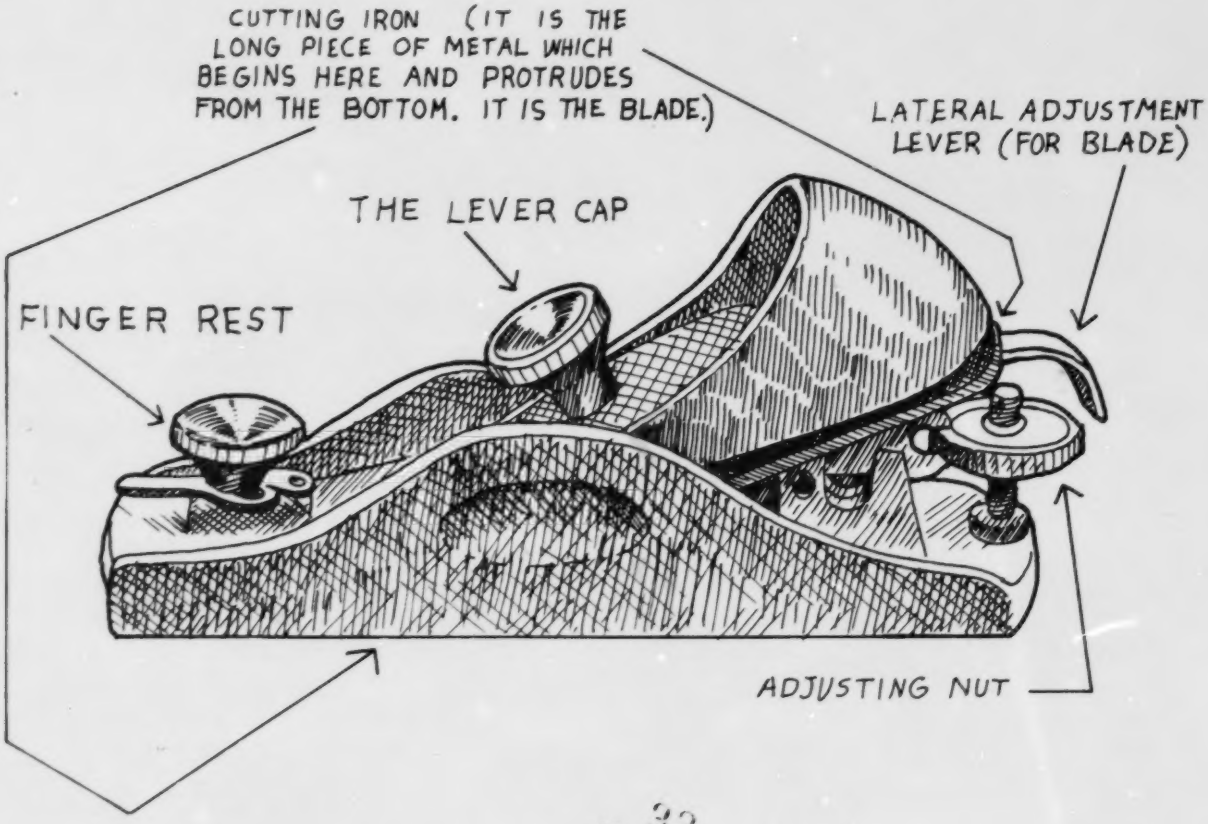
Instructional Objective VII

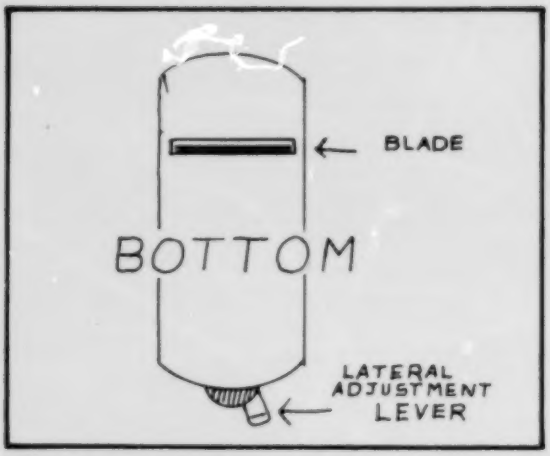
After instruction and observation of the block plane, the student will identify its parts and proper use.



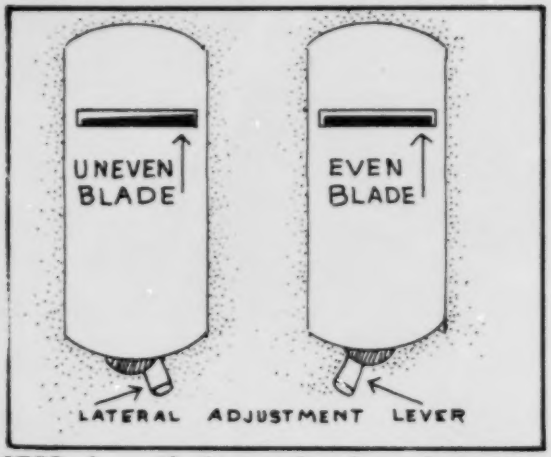
STEP 1 – Pick up the block plane.

STEP 2 – Look at the illustration below and locate each part in the picture on your block plane.

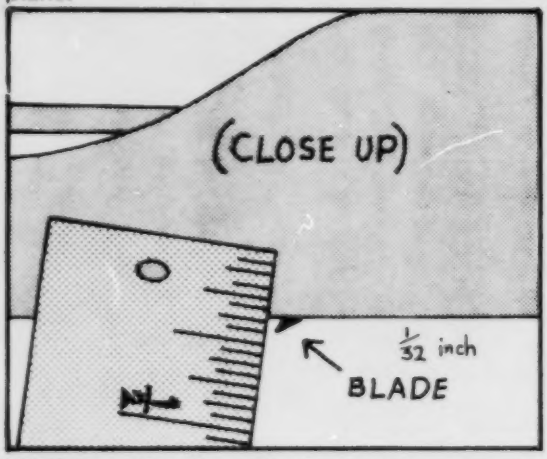

CUTTING IRON (IT IS THE LONG PIECE OF METAL WHICH BEGINS HERE AND PROTRUDES FROM THE BOTTOM. IT IS THE BLADE.)
LATERAL ADJUSTMENT LEVER (FOR BLADE)
THE LEVER CAP
FINGER REST
ADJUSTING NUT



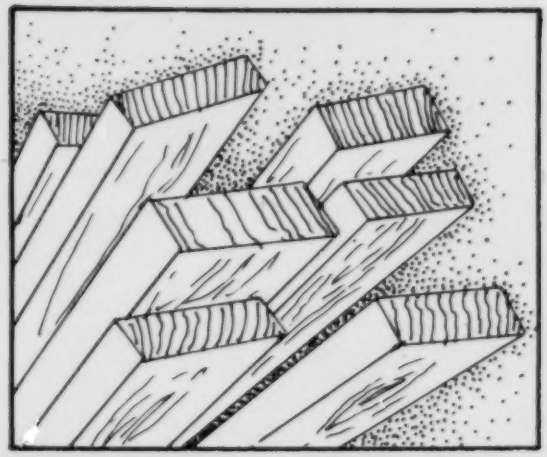
STEP 3 – Hold the plane upright and look along the bottom edge from the front.



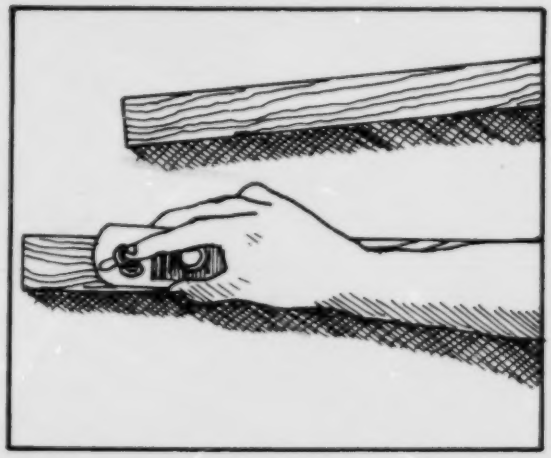
STEP 4 – If the cutting iron does not protrude evenly from the bottom, use the lateral-adjustment lever to make the bottom edge of the iron parallel to the bottom of the plane.



STEP 5 – Use the adjusting nut to set your depth to 1/32"-.079 cm (this is measured from the bottom of the plane to the end of the cutting iron).



STEP 6 – The block plane is a small size because its main purpose is: TO PLANE END GRAIN.



STEP 7 – Other uses include:

A. planing small pieces of wood.
B. fine trimming (what you will use it for).

Check Point

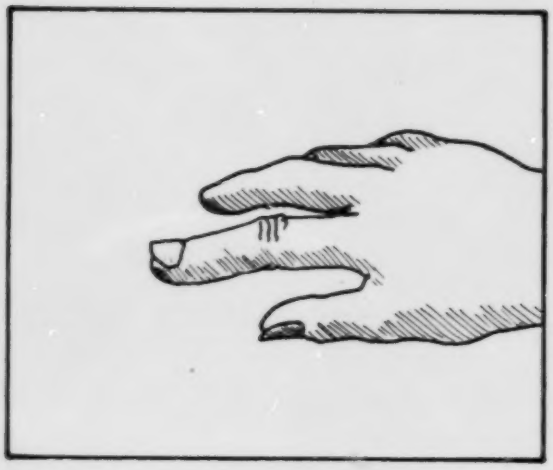
Turn to Checkpoint 7 in your workbook. Answer ALL parts. DO NOT LOOK IN THIS MANUAL until all blanks are full. If you miss 3 or more answers return to Step 1 and re-do this section. Check your answers with this manual. Obtain another copy of the Checkpoint from your teacher if you have to re-do.

34

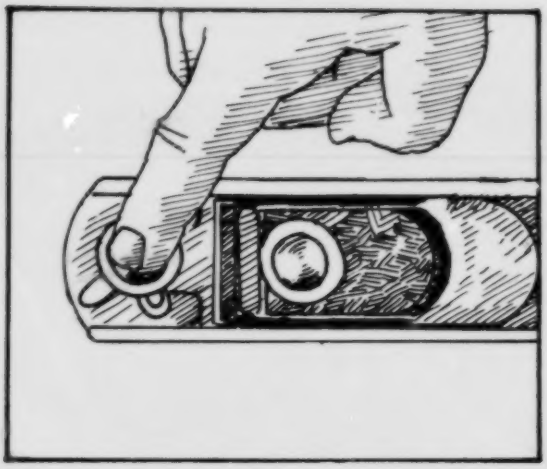
Instructional Objective VIII

Given instructions, the student will properly hold the block plane.

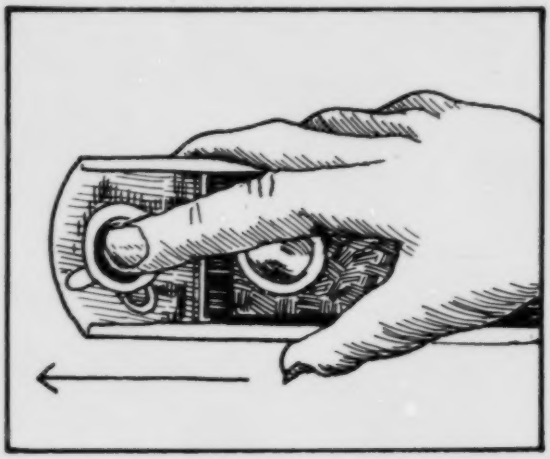
STEP 1 – You will hold the plane in the hand with which you write.



STEP 2 – Cup your hand (as determined in Step 1).



STEP 3 – Place the end of your index finger (next to your thumb) on the finger rest knob.



STEP 4 – Grasp the sides by placing your thumb on the left side and the other three fingers on the right side (evenly spaced along the side).

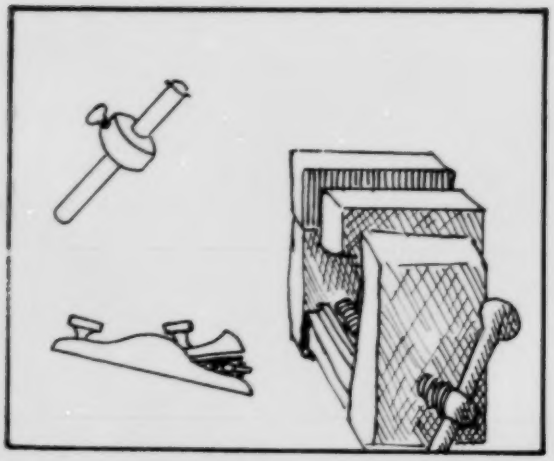
Check Point

Check with your instructor to see if you are holding the block plane correctly.

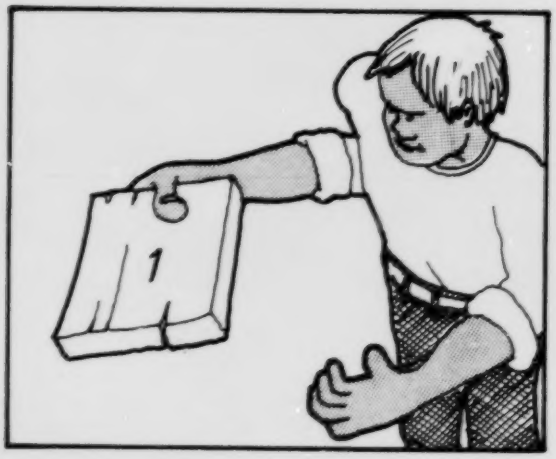
PLANING A CHAMFER

Instructional Objective IX

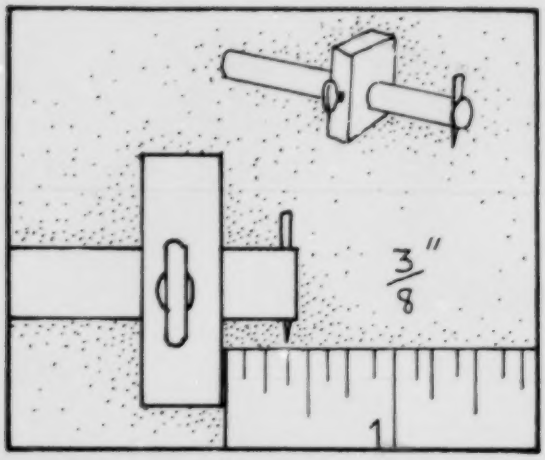
After instruction on using the block plane, the student will cut a chamfer on the edges of the top of box.



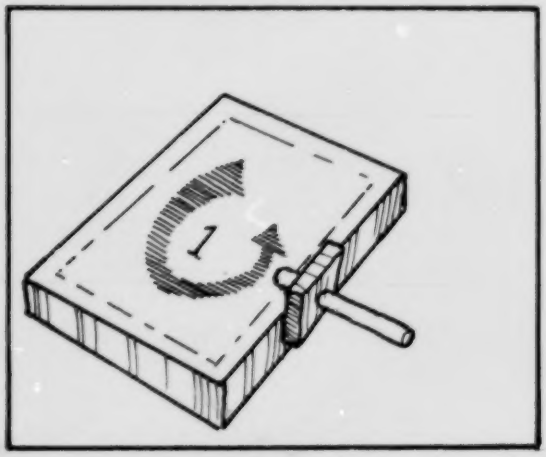
STEP 1 – Use these tools:
marking gauge
block plane
a vise to hold your board while planing



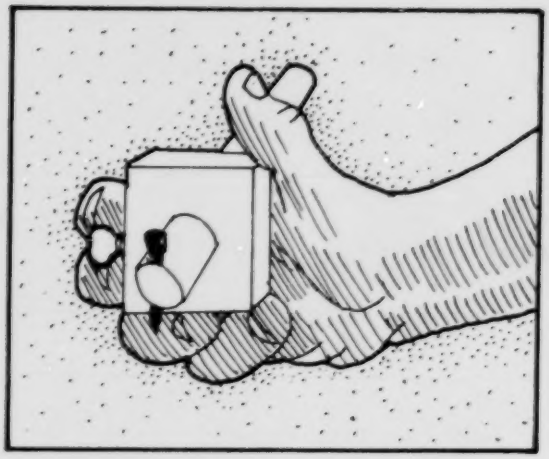
STEP 2 – Take the board you marked number 1 in Objective VI.



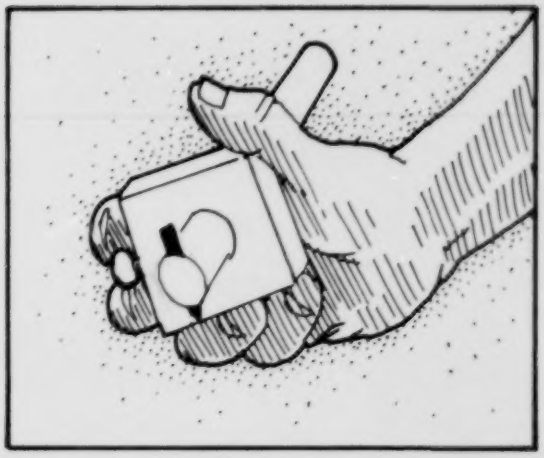
STEP 3 – Set the marking gauge on 3/8" by loosening the set screw, setting the gauge block on 3/8", and tightening the screw again.



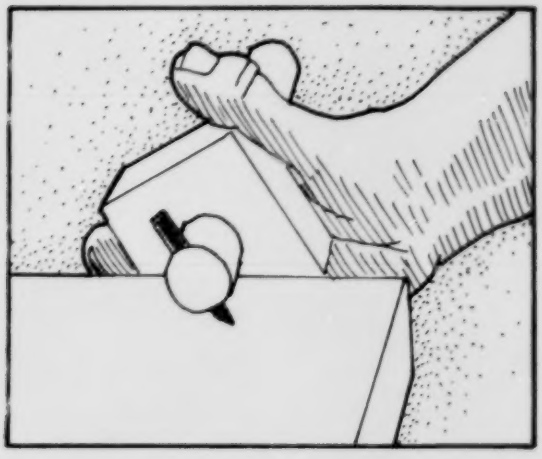
STEP 4 – Using the marking gauge, mark a 3/8" (.9525 cm) border around the top FACE of board number 1. To do this:



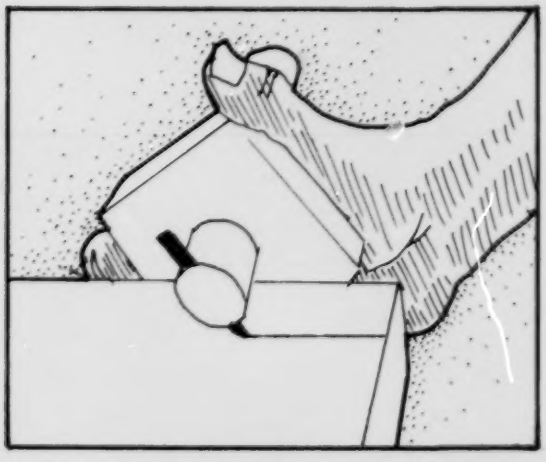
a. hold the tool firmly around the gauge block



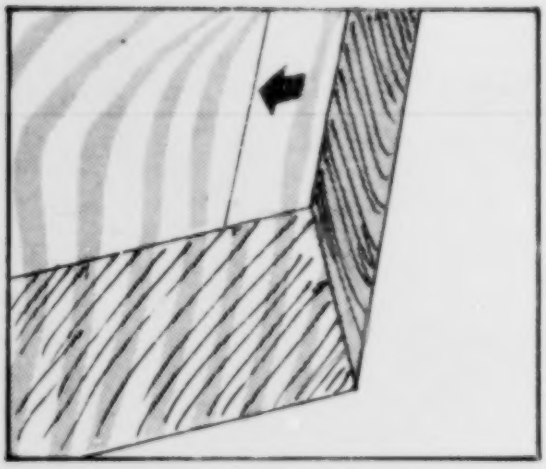
b. tip the tool



c. place the gauge block along the edge of the board with the spur extended onto the face of the wood

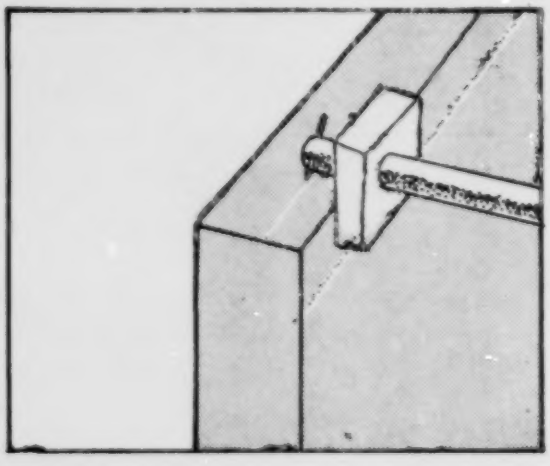


d. tip the tool away from you being sure to hold the block firmly against the side of the board.

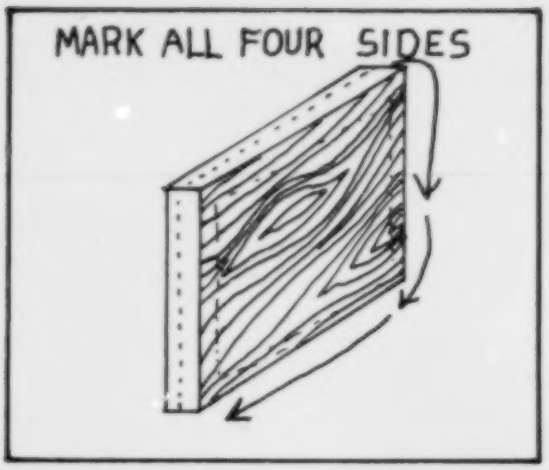


STEP 5 – The line should be knife-like. Check this now.

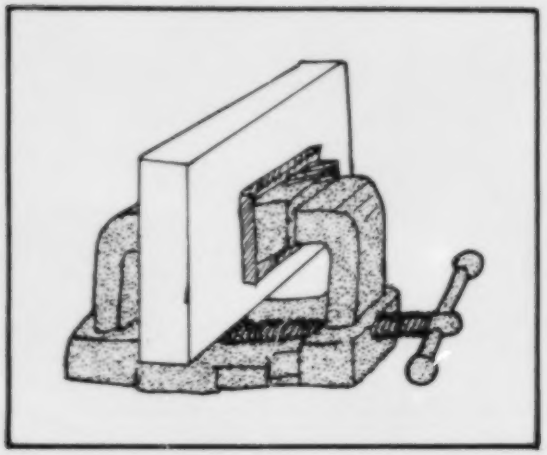
STEP 6 – Turn the board on its edge.



STEP 7 – Hold the gauge block against the face you just marked.



STEP 8 – Make a 3/8" (.9525 cm) mark around the ends and edges of the wood on the side adjoining the bordered face.

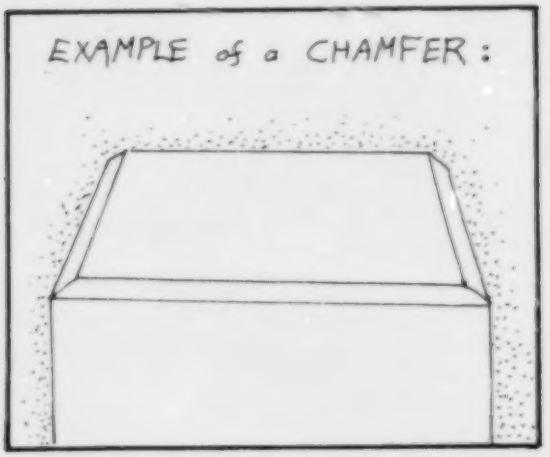


STEP 9 – Place the board in the vise (be sure to use scrap wood on either side of the board, so that it won't mar your box top) with the edge of the board up and the 3/8" (.9525 cm) border towards you.

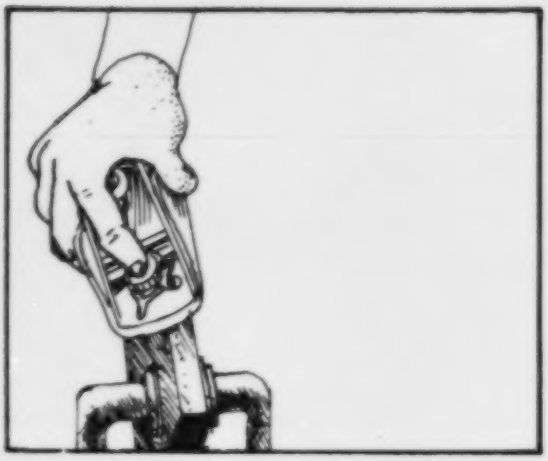
STEP 10 – Pick up the block plane. Notice the plane iron is the cutting blade. This blade is very sharp. BE CAREFUL! If anything seems loose, consult your instructor immediately.

Check Point

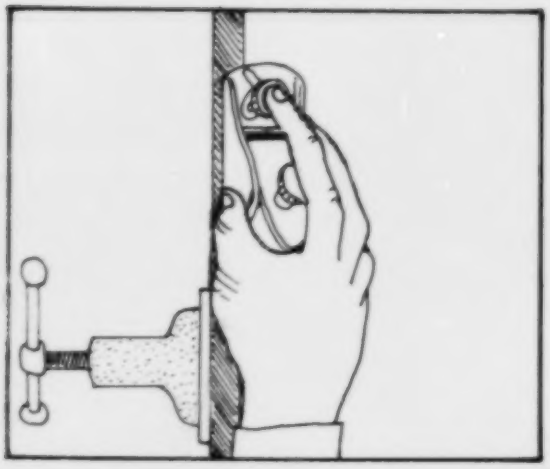
Go to Checkpoint 9 in your workbook. You must answer the question correctly. If you do, continue on; otherwise, READ OBJECTIVE IX again and answer the question on a checkpoint obtained from your instructor.



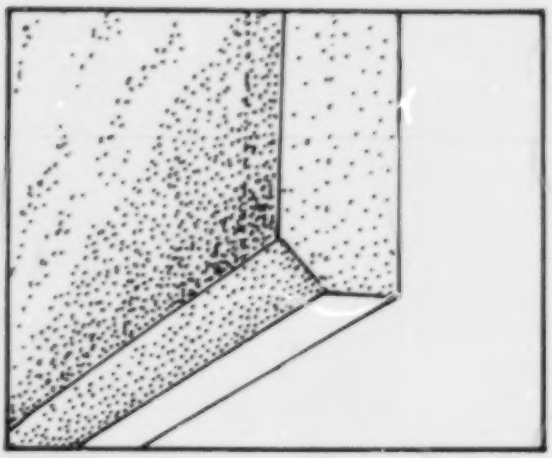
STEP 11 – You will be cutting a 45^{o} angle from the 3/8" (.9525 cm) mark on the top of your board to the 3/8" (.9525 cm) mark on the side. This cut will go around the entire top edge of your box. It is called a chamfer.



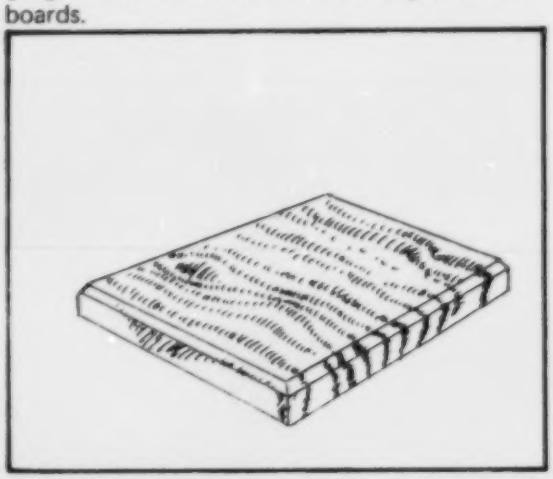
STEP 12 – Because the cut will be 45° and the plane iron in the block plane is straight, it will be necessary for you to hold the plane at a 45° angle while cutting.



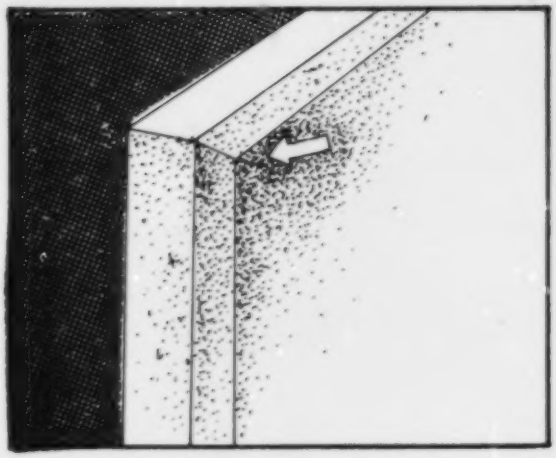
STEP 13 – Holding your plane constantly at a 45° angle, push the plane along the edge of the board, away from you. End grain may be difficult to plane. Go slowly and if you have any problems, consult the teacher.



STEP 14 – Plane all the way down to the imaginary 45° slope where the 2 marking gauge lines have become the edges of the boards.



STEP 15 – Do this on all edges and ends of the top (number 1) board. Repeat steps given.



STEP 16 – At the corners there should appear to be a line going from the corner up to where the 2 borders met.

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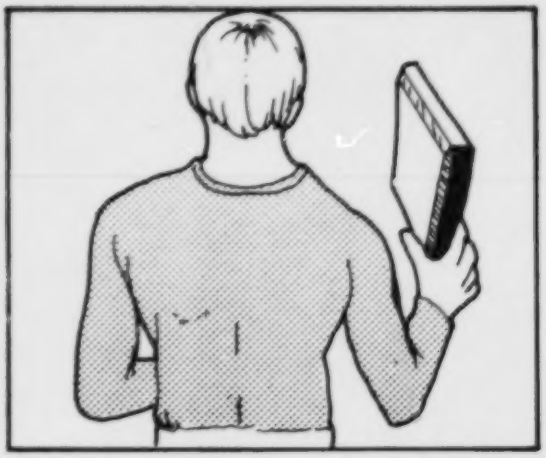


STEP 17 – After all 4 of the sides have been finished, your decorative edge is complete.

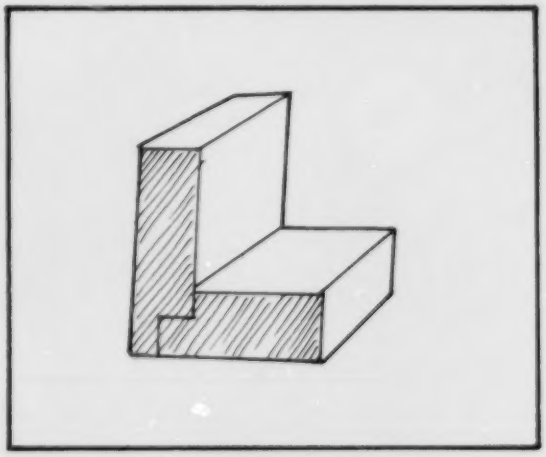
Check Point

Have your instructor look to see if you have completed all sides correctly.

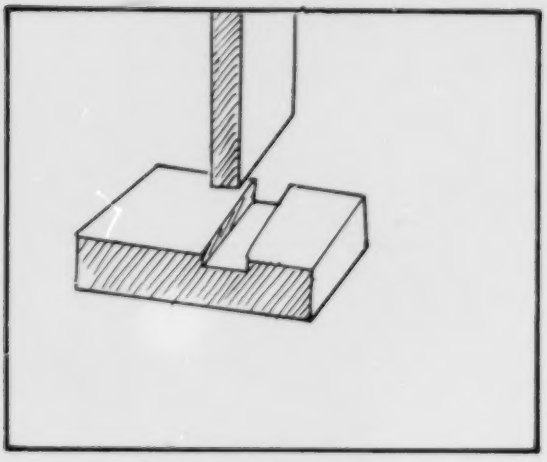
Instructional Objective X

Given plans and directions, the student will be able to cut a combination rabbet-dado joint.

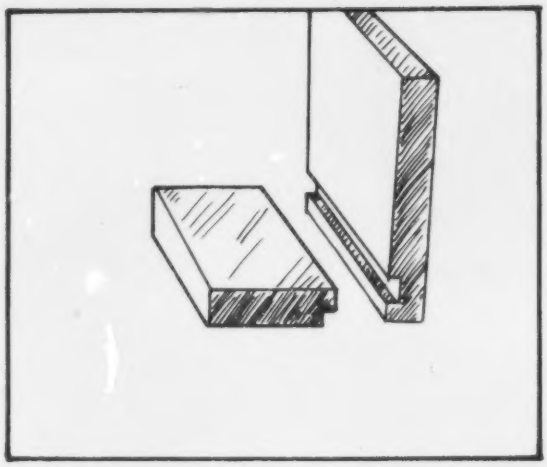
STEP 1 – To joint the 4 sides of your box, you will use a combination rabbet-dado joint.



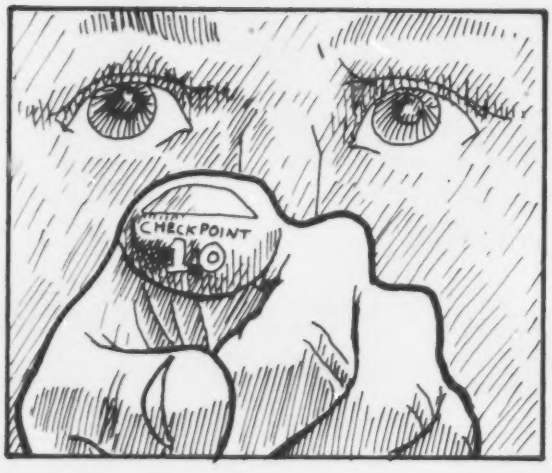
a. A rabbet joint looks like this:



b. A dado joint looks like this:

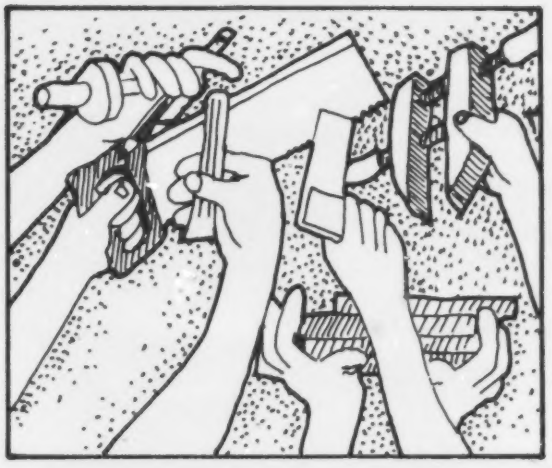


c. The combination of these 2--a rabbet-dado joint looks like this: The combination adds more strength to the joint.



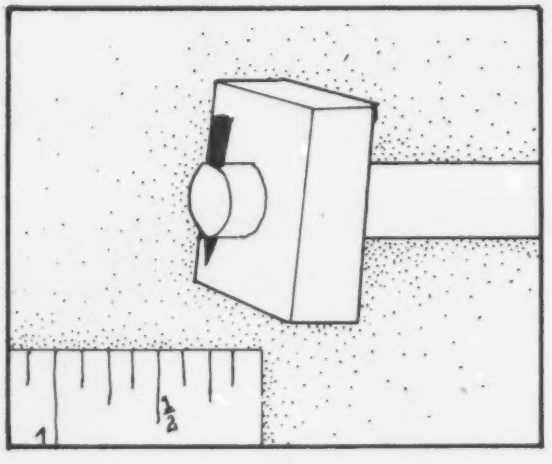
Check Point

Go to Checkpoint 10 in your workbook. Answer all questions WITHOUT looking at this manual. Check your answers by referring to Instructional Objective X. step 1 — a, b, c. If you missed any answers, go back to the beginning of the objective and do the step again. Try the Checkpoint again when you come to it. Otherwise, go on to Step 2.



STEP 2 — For this section, you will need:

1. Marking gauge and pencil
2. Backsaw
3. 3/8" (.9525 cm) chisel
4. Boards, numbers 2, 3, 5, 6, (sides and ends)
5. Trysquare
6. Wooden hand screw clamp



STEP 3 — Set the marking gauge on ¼" -(.635 cm).

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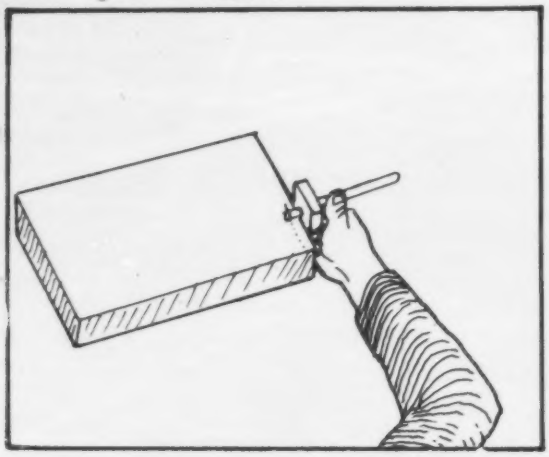
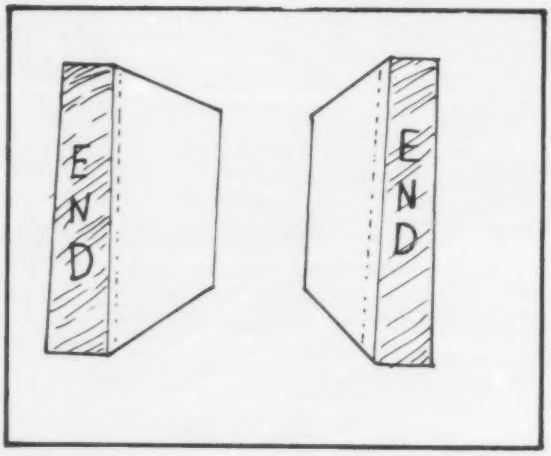
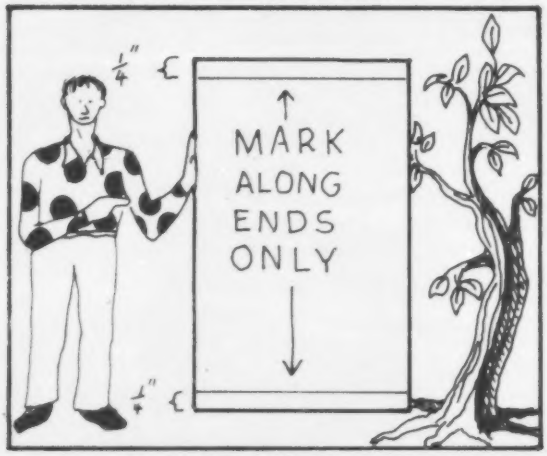
STEP 4 – On boards numbers 3 and 4, do the following to make dados:



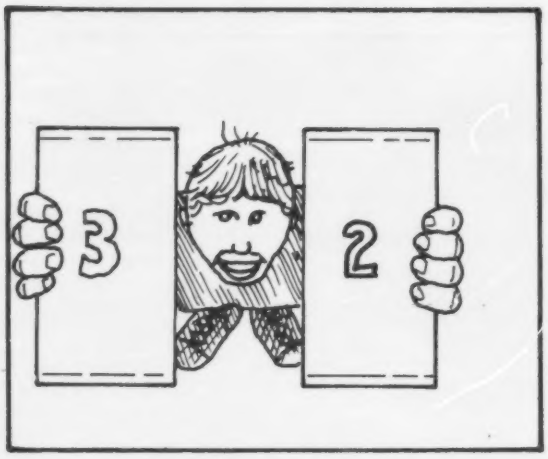
a. Hold the gauge block against the end of the board.



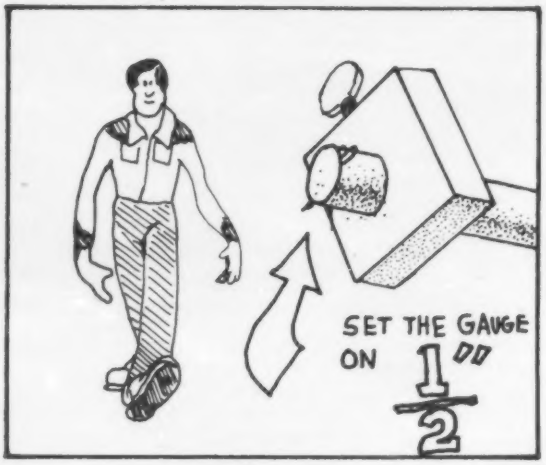
b. Mark ¼" (0.635 cm) from the ends onto the faces of the boards facing the INSIDE of the box.



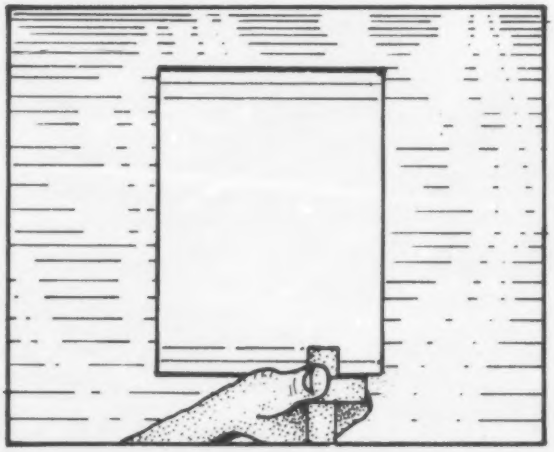
c. DO NOT MARK ALONG EDGE OF FACE



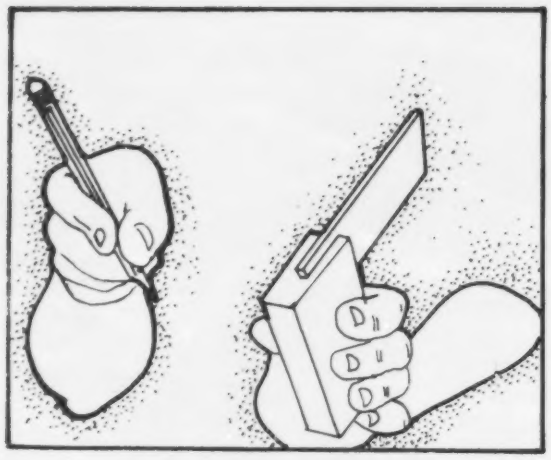
d. Do this on boards 2 and 3 -- inside only.



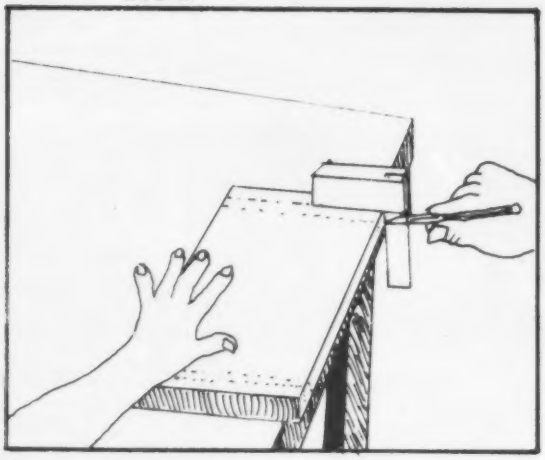
e. Set the marking gauge on ½" (1.27 cm).



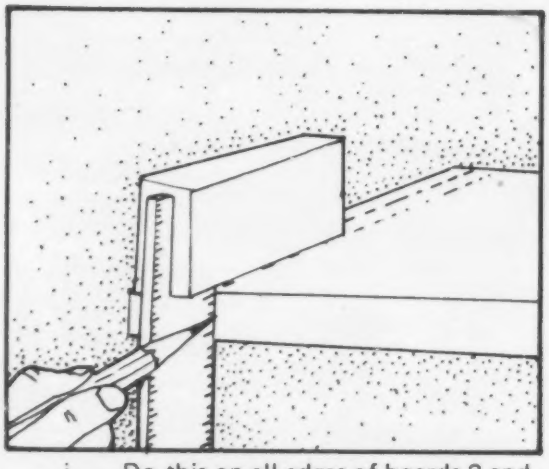
f. Mark a line parallel to the ¼" line on both boards 2 and 3 INSIDE face only.



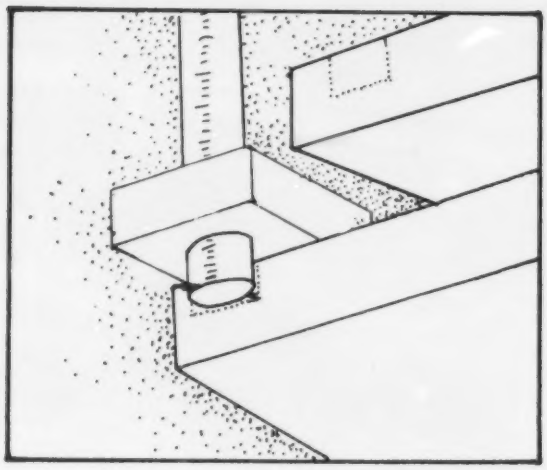
g. With a trysquare and pencil extend these marks onto the edge of the board.



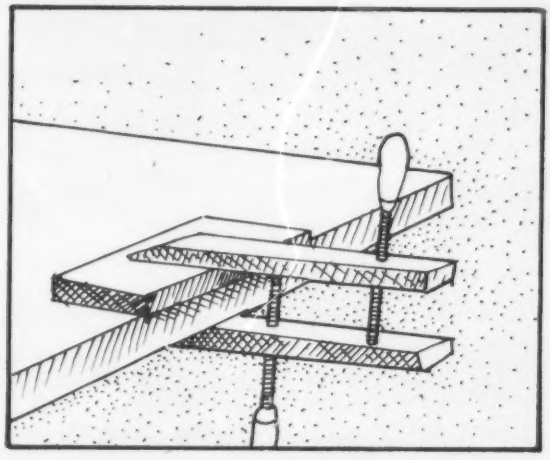
h. Hold the trysquare handle flat against the face and extend the rule down onto the edge. Match the rule up with the marking lines and make a pencil mark on the edge.



i. Do this on all edges of boards 2 and 3.



j. Set the marking gauge on ¼" and make a line perpendicular to and joining the 2 parallel pencil lines you just made made by holding the gauge against the face you previously marked.



k. Secure one of the boards on the work bench by clamping it to the table at the board's middle.

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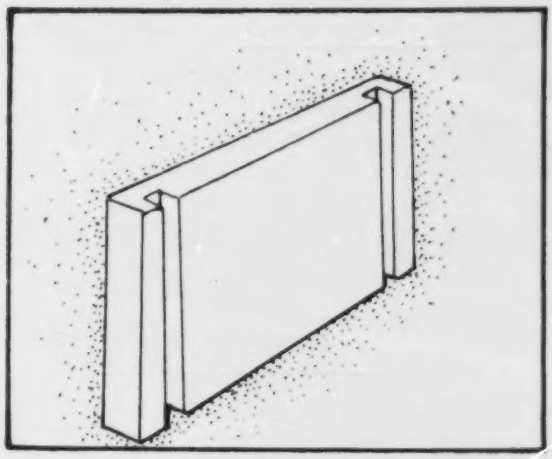
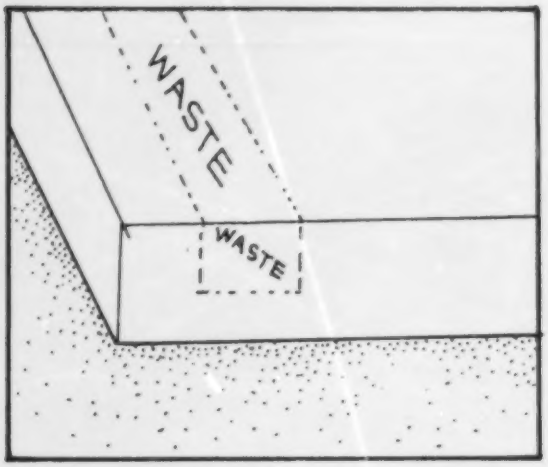
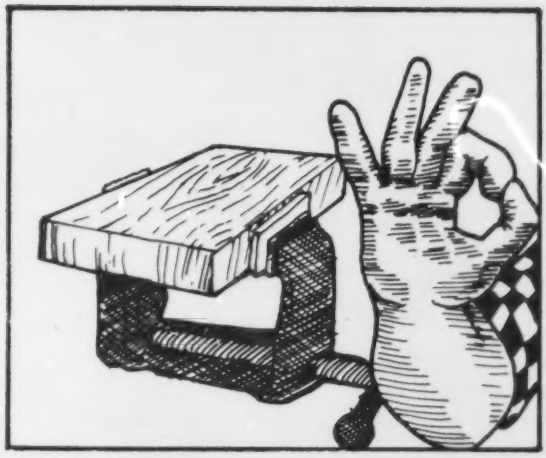


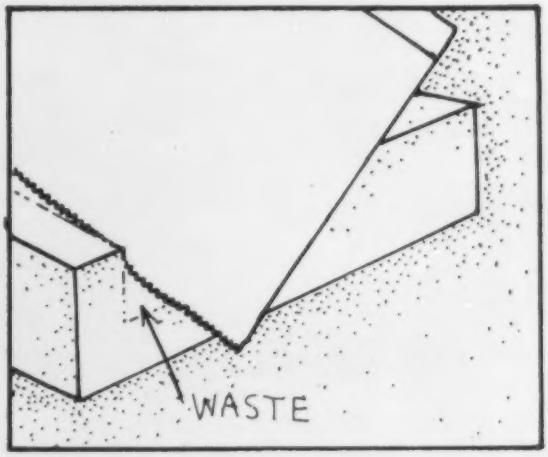
l. You will chisel out wood so the board will look like the illustration above.



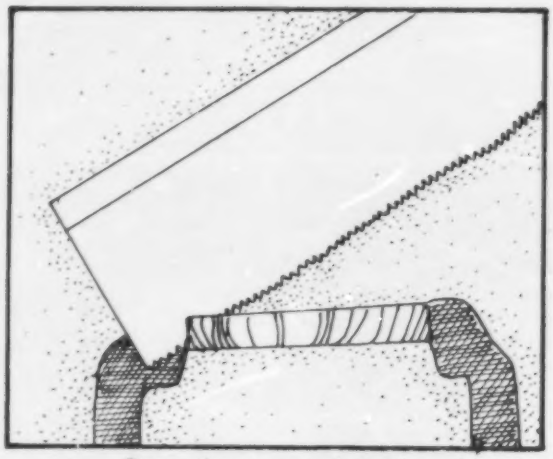
n. Place the backsaw on the WASTE side of the marking gauge line. NOTE: The waste area will be chiseled out.
The kerf should be on the inside of the lines and cut into the WASTE area.



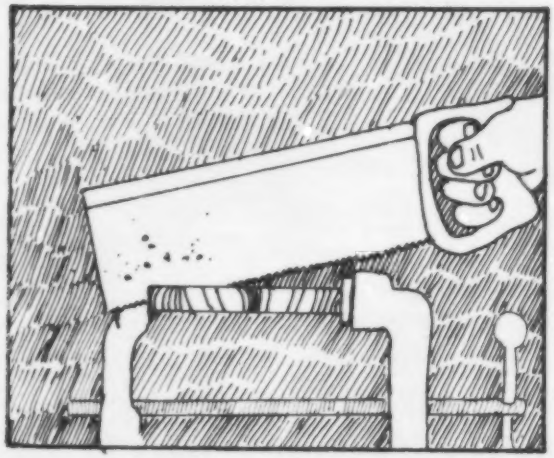
m. Make sure that the board is in the vise securely and that a saw will be able to saw the depth of the dado.



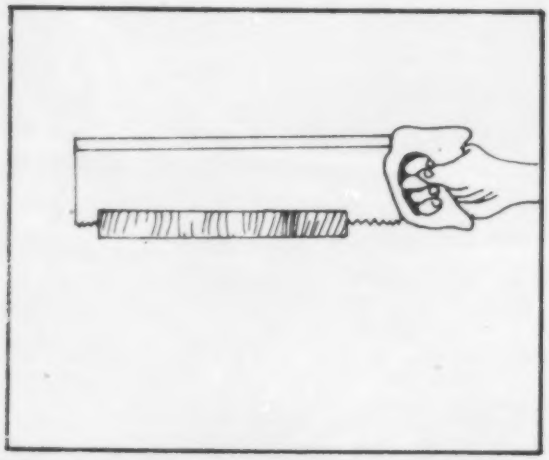
o. Start out sawing at an angle.



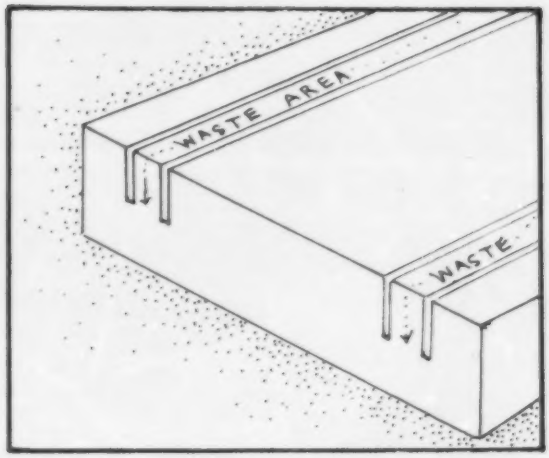
p. Draw the saw teeth back and forth across the wood.



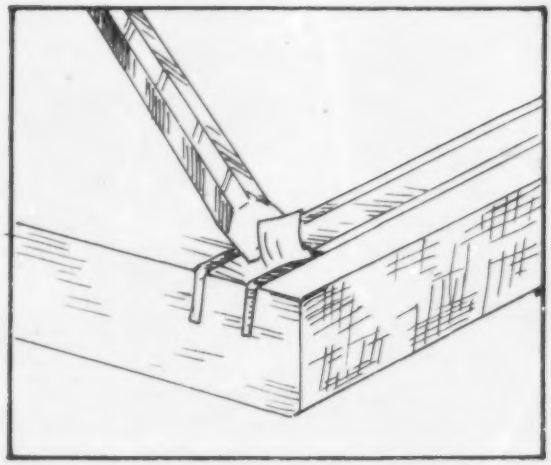
q. Lower the angle of your saw as you continue cutting.



r. Cut the depth to the ¼" (0.635 cm) marking gauge line on the edge. At this point your saw should be at no angle with the board.

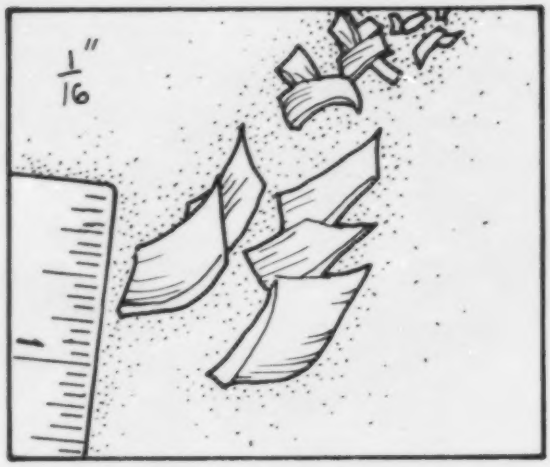


s. Cut each side of every dado on boards 2 and 3 with the saw kerf in the waste area as described before.

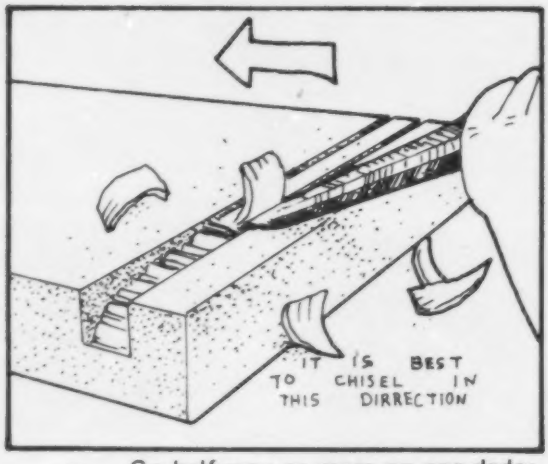


t. With a chisel (and wooden mallet, if available), remove the waste area of the dado (the board is still in the vise). Have the beveled side of the chisel blade up.

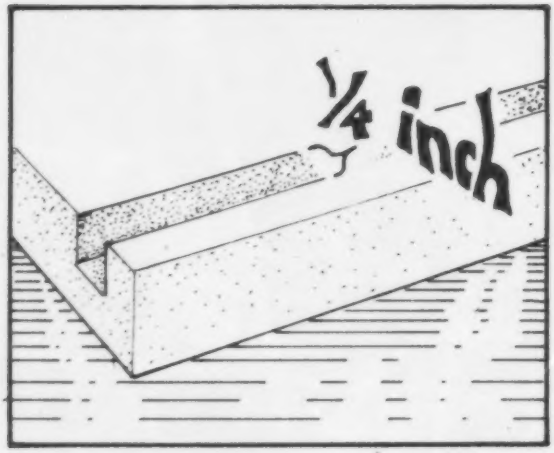
45



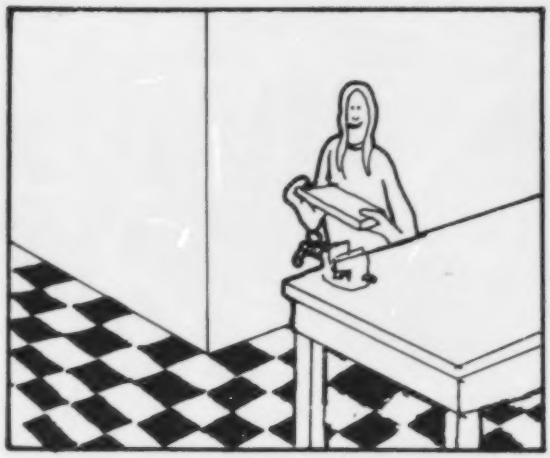
u. Take off about 1/16" (.15875 cm) --at the most-- at a time. N E V E R point the chisel toward yourself.



v. Go half way or more on one dado; then turn the board around and chisel the other half of the same dado.



w. The dado must be ¼" (0.635 cm) wide at all points.



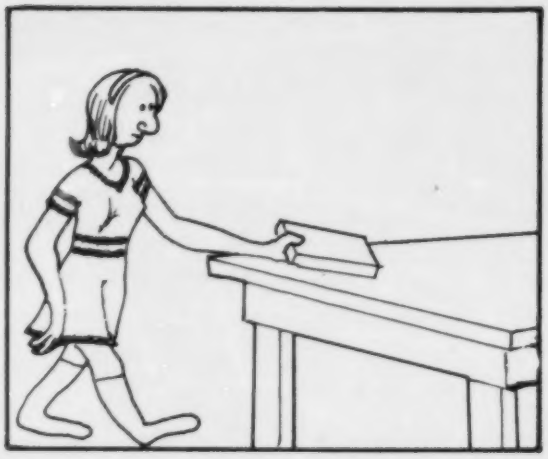
x. Chisel waste material from dados on boards 2 and 3. Be sure to clamp securely.

Check Point

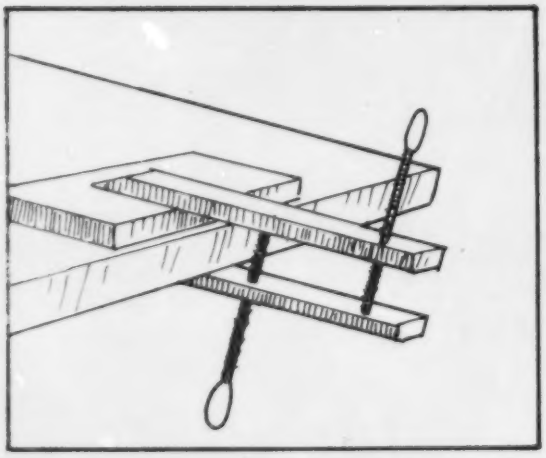
Ask your instructor to check your work.

Instructional Objective XI

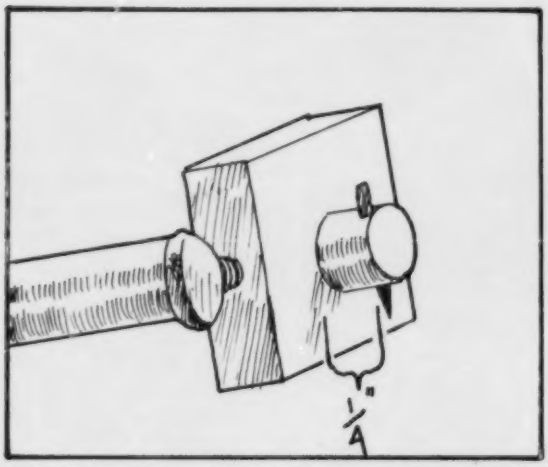
On boards number 5 and 6, the student will make a rabbet by following these steps:



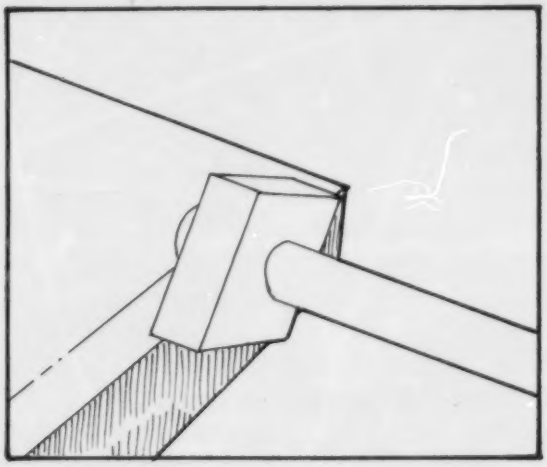
STEP 1 – Lay board on table.



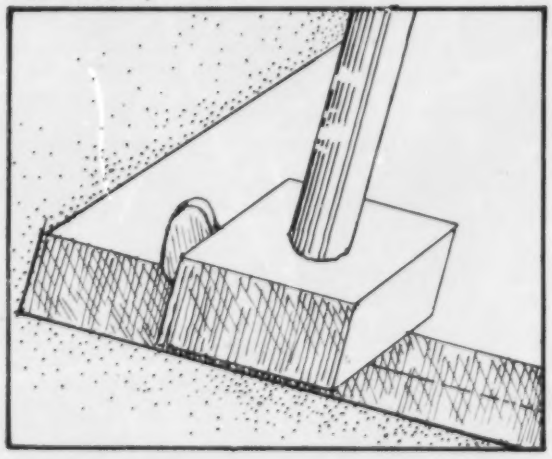
STEP 2 – Clamp board on the table.



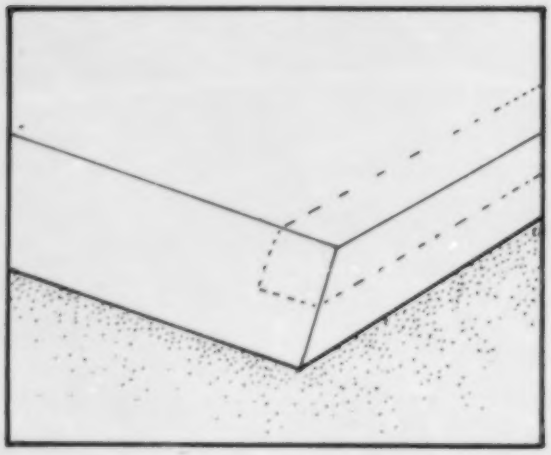
STEP 3 – Set marking gauge on ¼" (0.635 cm).



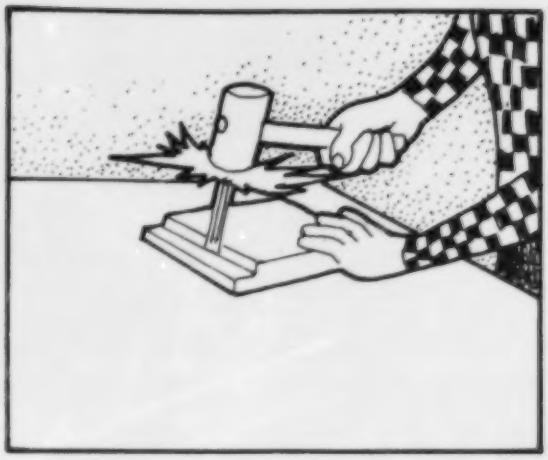
STEP 4 – Mark the INSIDE face along both 5" (12.7 cm) sides of the board. Never TOWARDS yourself.



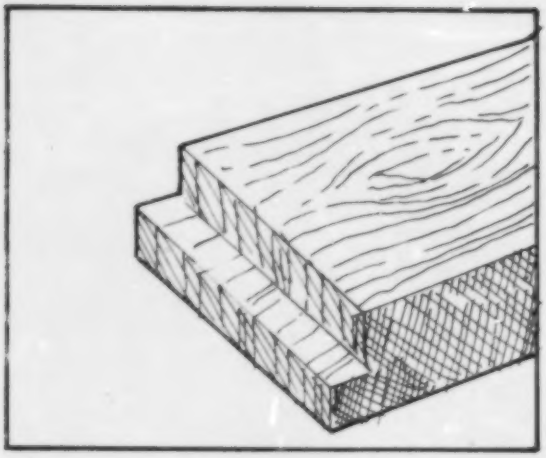
STEP 5 – Mark the 5" (12.7 cm) edges by holding the gauge block on the face just marked.



STEP 6 – Use the trysquare and pencil as before to draw lines on the ends of the boards perpendicular to the lines you just marked.



STEP 8 – After sawing both ways (each side of the rabbet), you may need to use the chisel--BEVEL UP--to trim away some of the rough areas.



STEP 7 – Place board in the vise so that you can saw the waste areas of this board. Do both rabbets. Remember the saw kerf must be barely on the INSIDE of the marking line.

Check Point

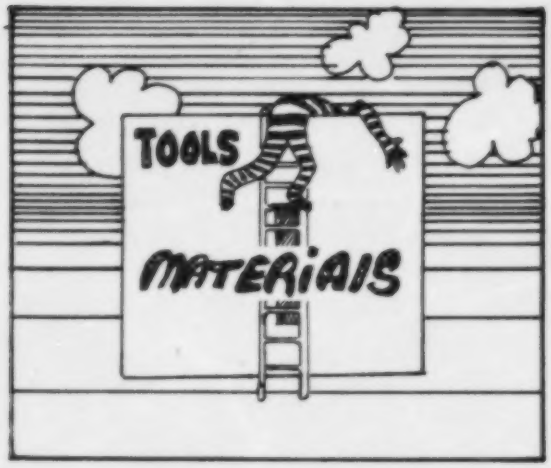
Your boards should fit together as follows.

If you are having difficulty getting them to fit together, have your instructor advise you.

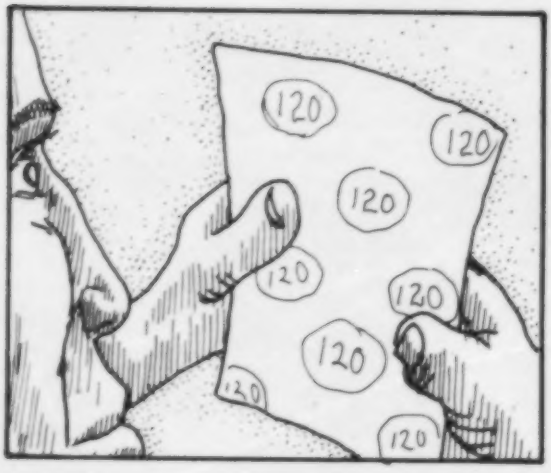
DO NOT go any further until the sides joint together.

Instructional Objective XII

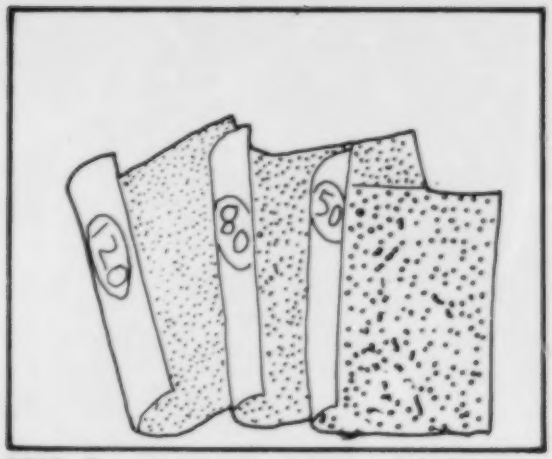
Given materials and directions, the student will complete sanding of boards.



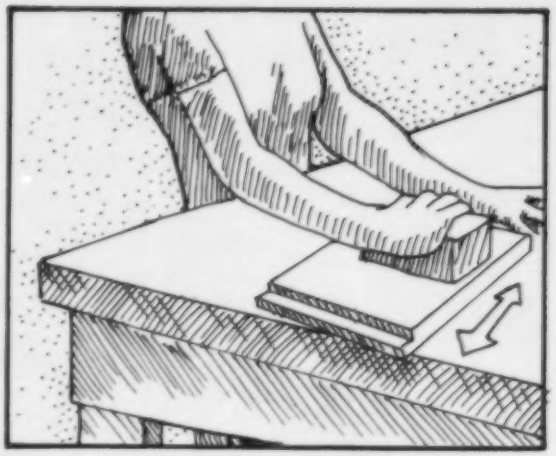
STEP 1 – Remove the sandpaper from your materials.



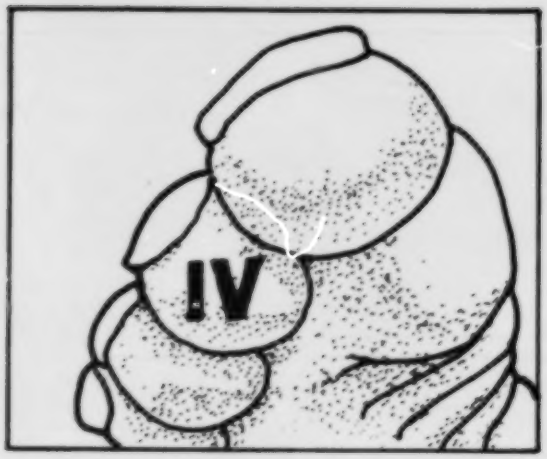
STEP 2 – Notice the numbers on the back of the sandpaper. These numbers indicate the grit or texture of the sand particles.



STEP 3 – Notice that the LARGEST grit NUMBER will have the finest texture.



STEP 4 – When you sand, you sand ONLY WITH THE GRAIN. Going crosswise on the grain will cause scratches to show up when you apply the stain.

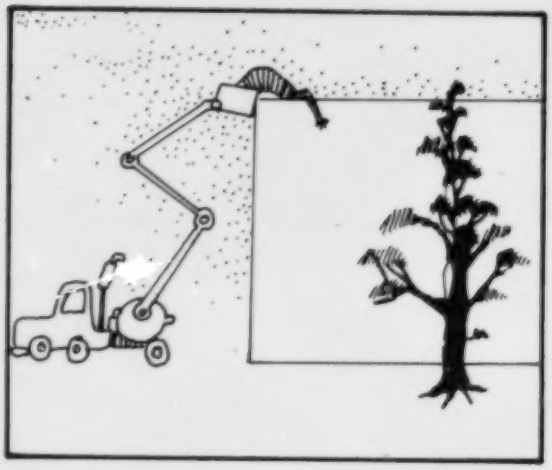


STEP 5 – If you do not remember how to detect grain, go back and review Instructional Objective IV.

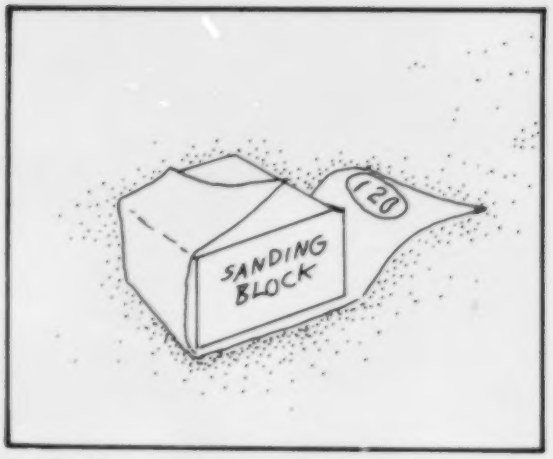
STEP 6 – If it is hard for you to tell the direction of the grain, ask your instructor for assistance.

Check Point

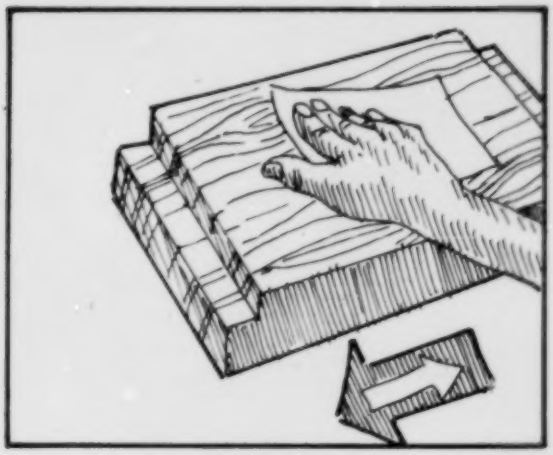
Turn to Checkpoint 12 in your Workbook. Do this and check your answers with your instructor.



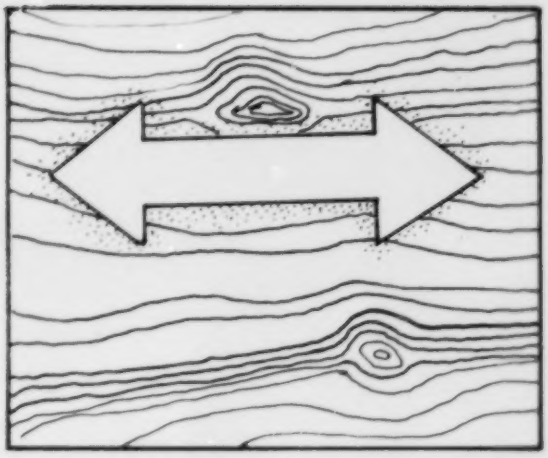
STEP 7 – Get the sanding block from your materials.



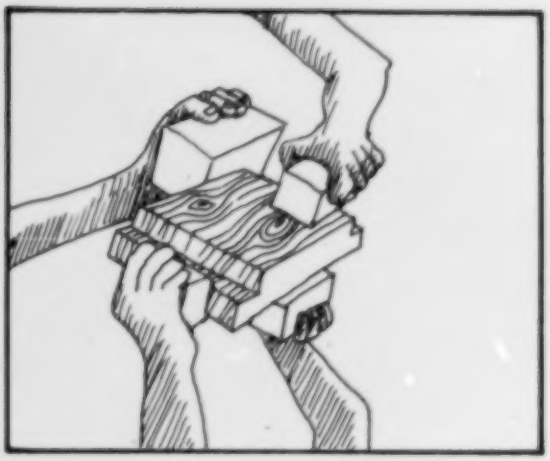
STEP 8 – Wrap the smallest number sandpaper (roughest texture) around the sanding block with the numbers against the block.



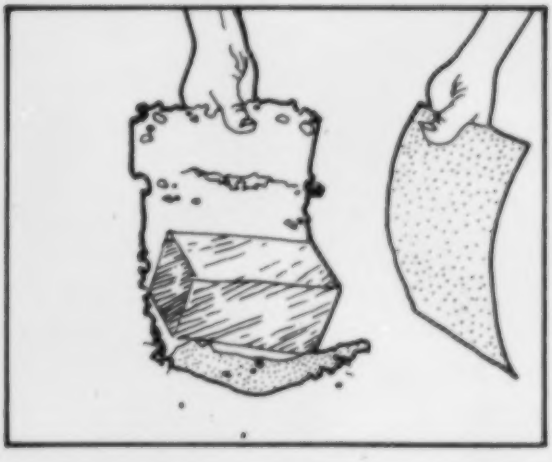
STEP 9 – Place one of the faces of your board on the table. Hold the sanding block flat against the board. (You will have to hold the sandpaper tightly onto the sanding block.) Sand the other face by holding the board with one hand and sanding with the other. You may need to turn the board around to be able to sand and hold at the same time.



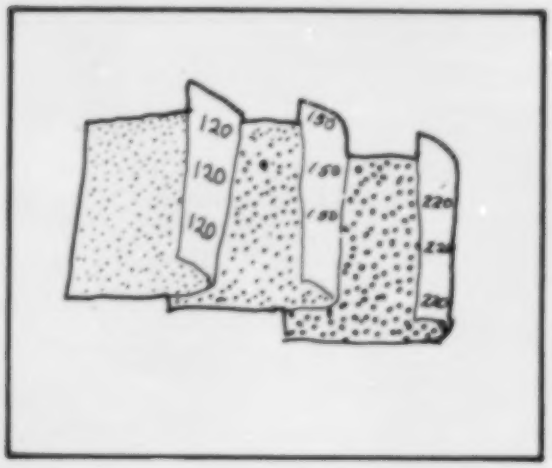
STEP 10 – Sand ONLY WITH THE GRAIN of the wood. DO NOT SAND INSIDE THE JOINTS.



STEP 11 – SAND EVERY EDGE, END, AND FACE (and the CHAMFER) of each of your six boards. Be sure to use the sanding block flat so you won't round any corners of the box.



STEP 12 – You may need to change sandpaper if the abrasive wears off.



STEP 13 – After sanding all boards with the same grit of sandpaper, change to a finer grit. (If you have used 120, then go to 150, then to 220. DO NOT GO 120, 220, 150!)

STEP 14 – Sand every side of each board with the 3 grits of sandpaper.

Check Point

Check with your instructor to see if the wood is smooth enough. The instructor will give you further instructions if it is not satisfactorily sanded.

Instructional Objective XIII

Given materials and instructions, the student will assemble the box by means of gluing and clamping.

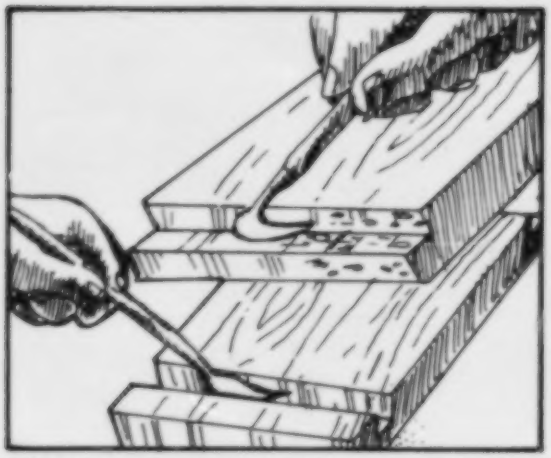
STEP 1 – Gluing is used as a fastener or adhesive to join boards together. Clamps, or in this case wooden hand screws, are used to hold the boards tightly together while the glue is setting. If you apply too much glue either

(1 dampen a cloth and carefully remove excess glue (being sure not to smear or wipe it all over your board), or

(2 let it dry and chip it off with a chisel. This may SEEM easier, but REMEMBER the chisel is sharp and could slip and cut into your sanded board.)

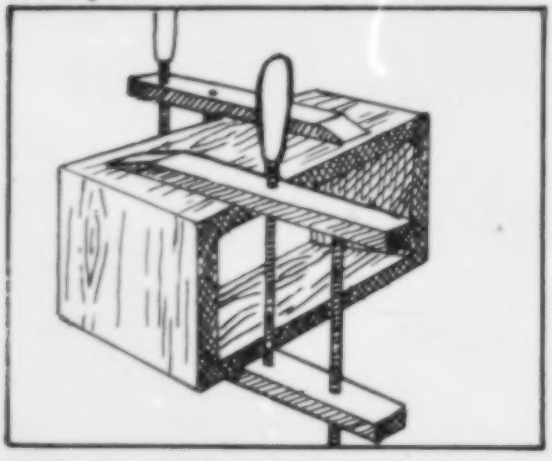
Check Point

Turn to Checkpoint 13 in your Workbook. Answer all questions and DO NOT LOOK at the manual. After answering all questions, check your answers with this manual. If you miss one or more answers, go back to Step 1 and re-read the introduction.

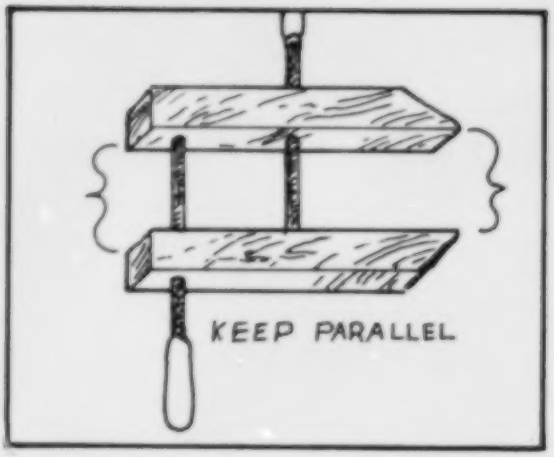


STEP 2 – Apply glue with small ¼" brush (0.635 cm) to the 4 sides that are jointed together as follows. (Put glue on whole inside of dados.)

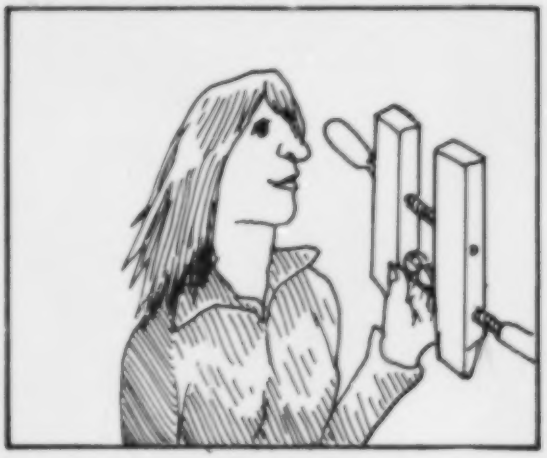
STEP 3 – Put pieces together and wipe off excess glue.



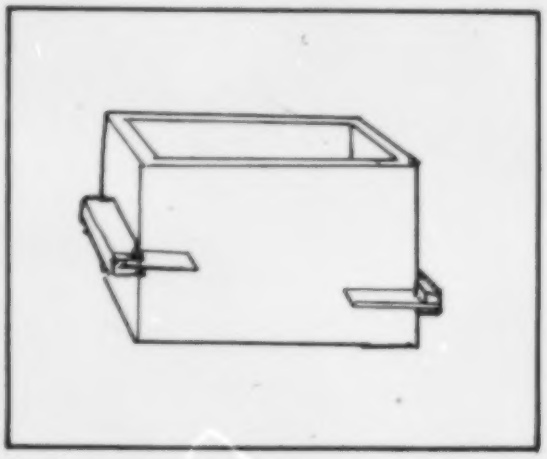
STEP 4 – Apply wooden hand screws as shown. Use scrap lumber between box and handscrews as shown.



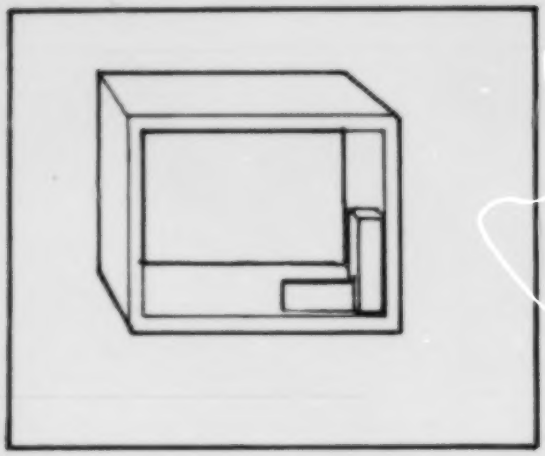
STEP 5 – Keep jaws parallel.



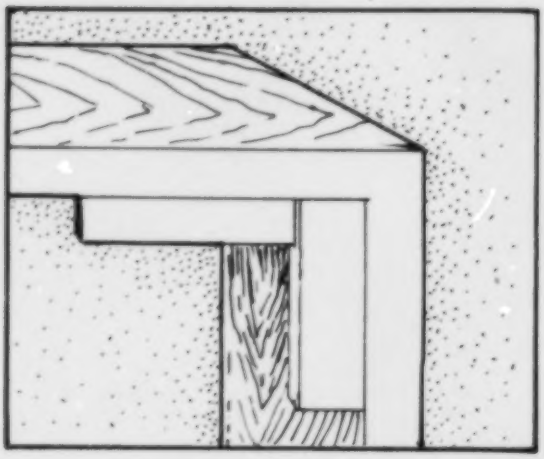
STEP 6 – Use one more clamp on each side if necessary.



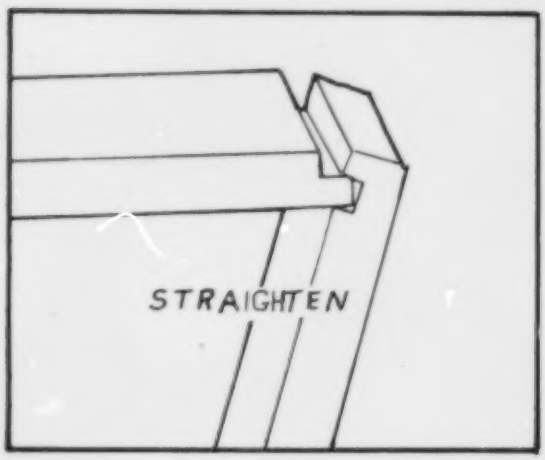
STEP 7 – Use the trysquare to see if all 4 sides are 90° apart.



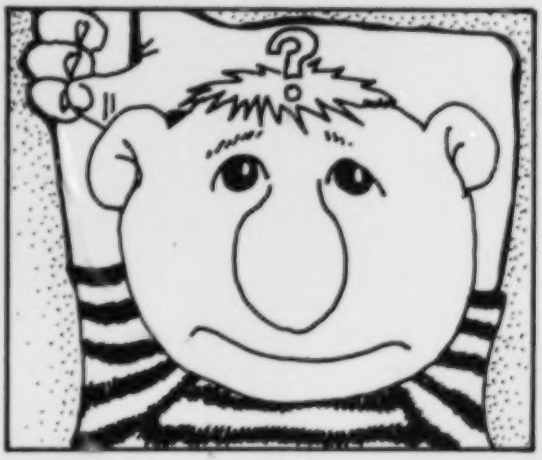
STEP 8 – Place trysquare inside the box.



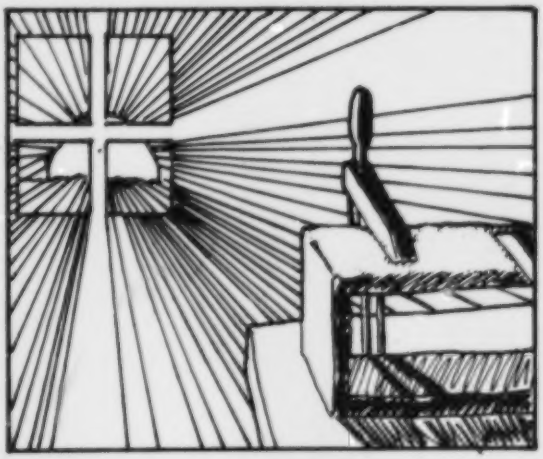
STEP 9 – Hold handle flat and rule against an adjoining side.



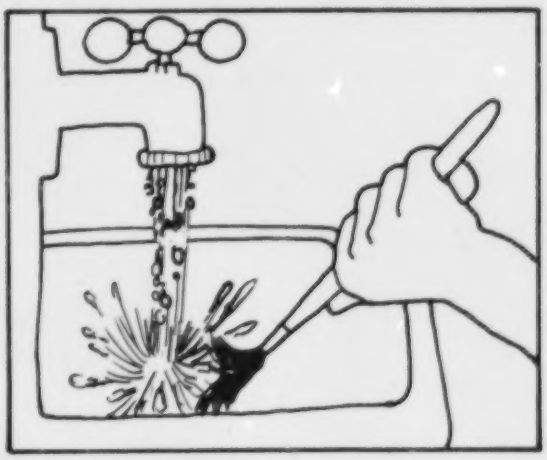
STEP 10 – if they are not 90° apart, you will need to re-adjust your clamps.



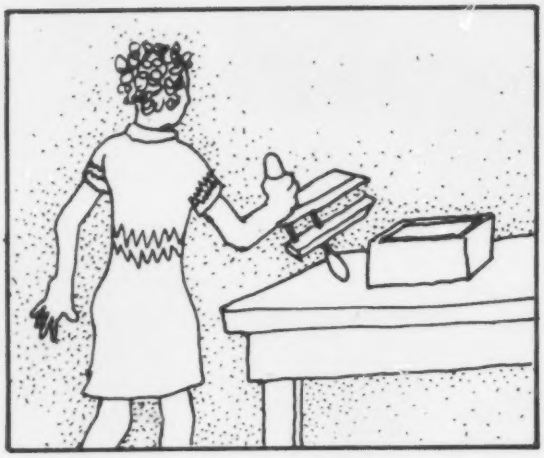
STEP 11 – If you are having difficulty, consult your instructor. Remove any excess glue with a damp rag or paper towel.



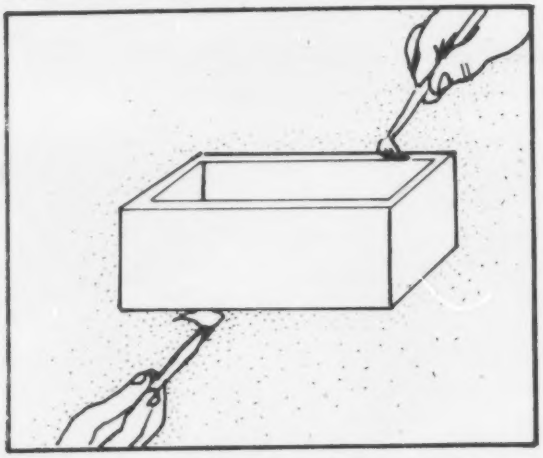
STEP 12 – Let dry 24 hours (until next class period).



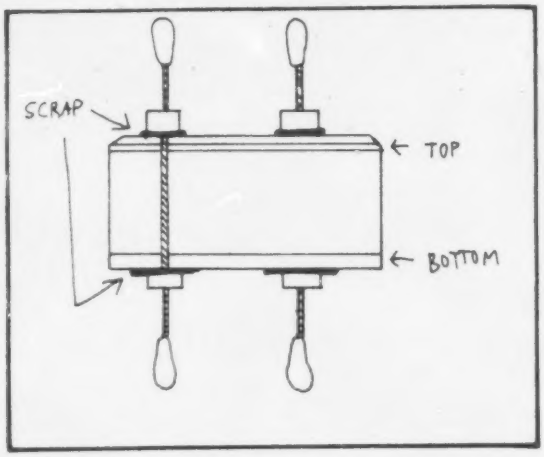
STEP 13 – Wash glue from brush with water.



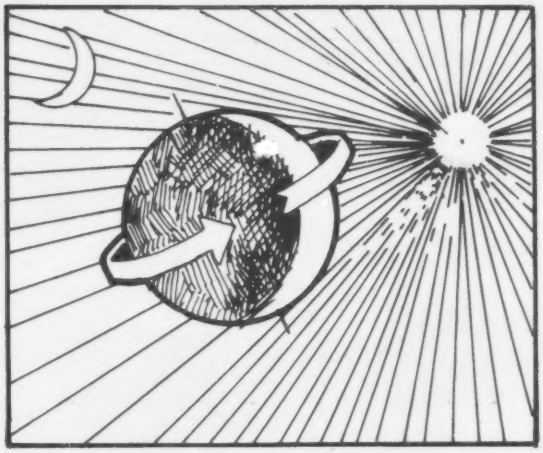
STEP 14 – Remove hand screws.



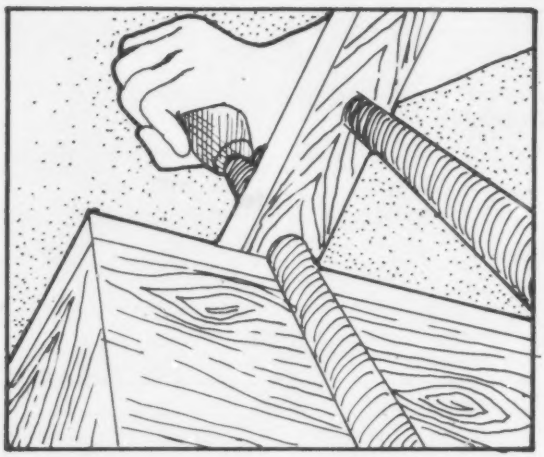
STEP 15 – Apply glue with ¼" (0.635 cm) brush to top and bottom of box as follows.



STEP 16 – Apply clamps as follows. Glue should be sticking to bottom and top of sides of box.
Be sure to use scrap lumber between the box and hand screws.



STEP 17 – Let dry 24 hours.



STEP 18 – Remove clamps.

Check Point

All pieces should be secure.

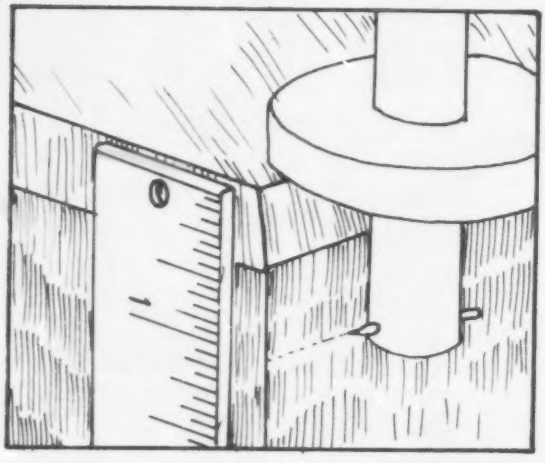
CUTTING THE LID

Instructional Objective XIV

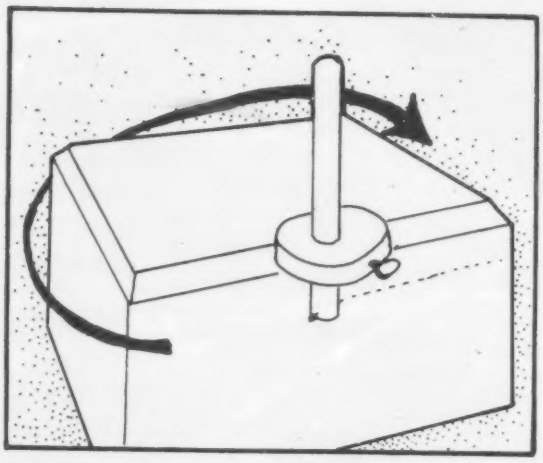
After proper instructions, the student will cut the box to make a lid for an opening by using a marking gauge and saw.

NOTE: At this point, your box is glued completely together. You will be cutting it to make a lid. The reasoning behind gluing it all together, then sawing it all apart is that the top should fit the bottom exactly.

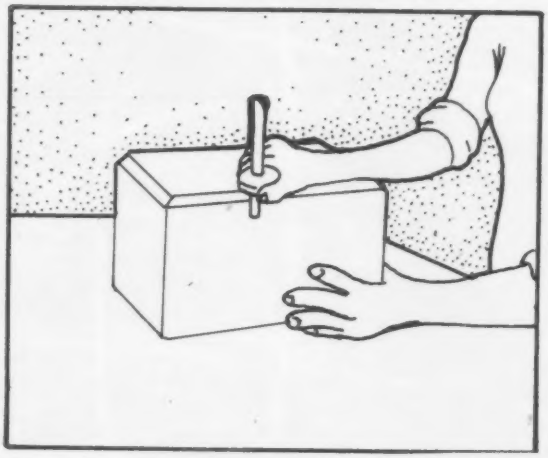
STEP 1 – Set the marking gauge on 1" (2.54 cm).



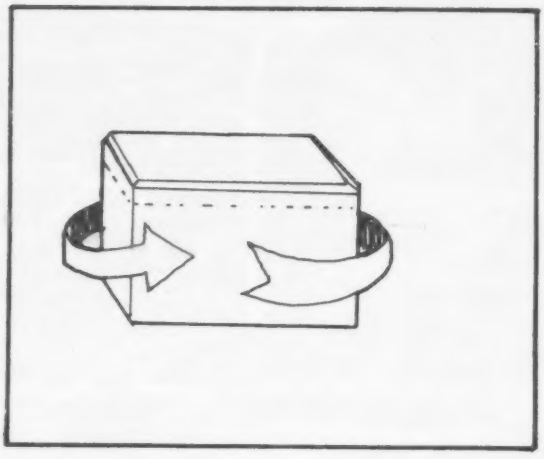
STEP 2 – Hold the gauge block against the face that has the chamfer on it.



STEP 3 – Mark around the sides of the box.

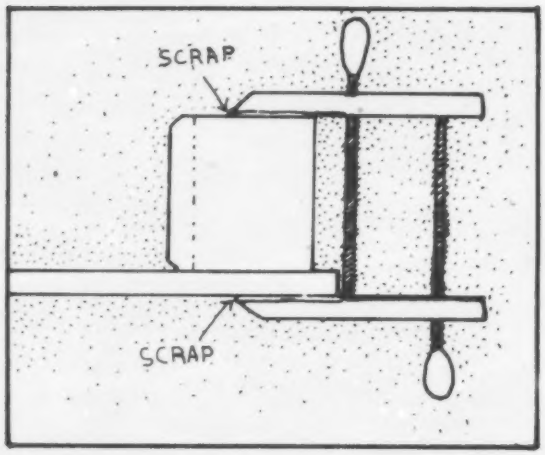


STEP 4 – Hold the marking gauge firmly against the top face of the box.

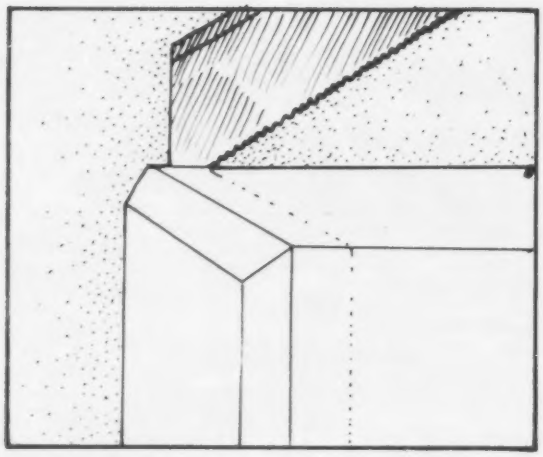


STEP 5 – You should have a line 1" (2.54 cm) from the top of the box around all sides.

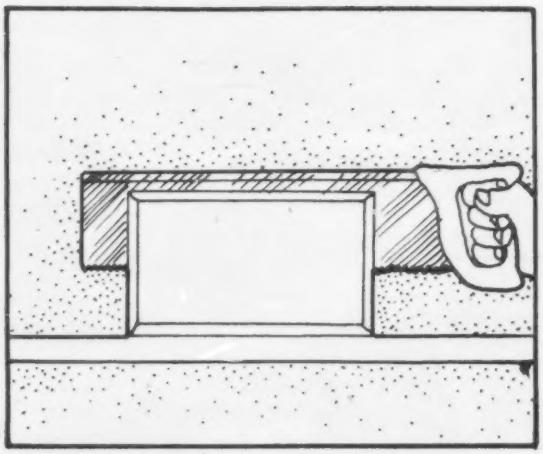
50



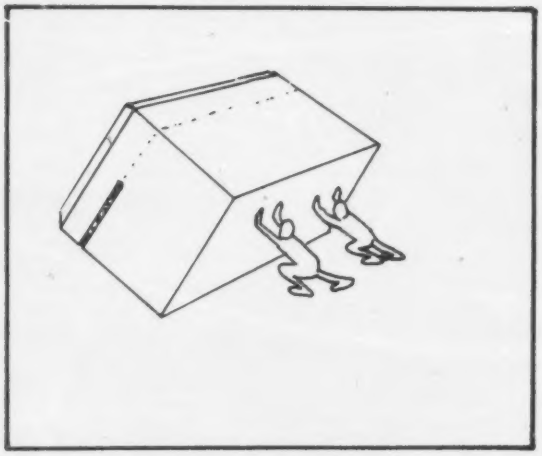
STEP 6 – Place your box in a vise. NOTE: Be sure to use scrap lumber between box and clamps so that you won't damage the sanded box. Have the front (or back) of box facing up and the top and the bottom clamped next to the vise (be sure to use scrap lumber.)



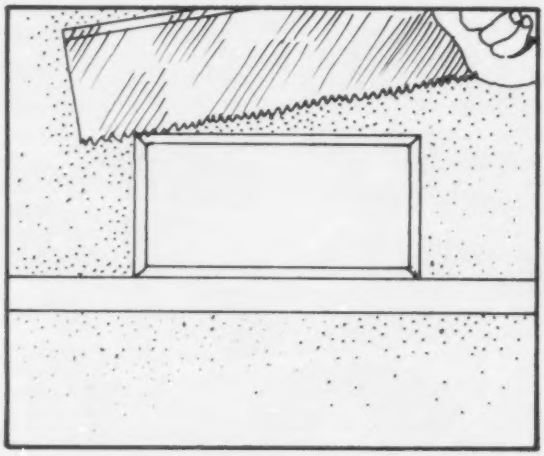
STEP 7 – Place the teeth of the saw directly over the marking gauge line.



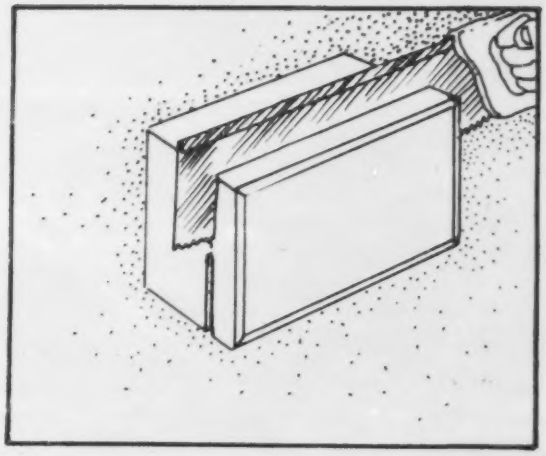
STEP 8 – Using the same procedure for sawing as you used for sawing your joints, saw half way through the box FOLLOWING THE MARKING GAUGE LINES.



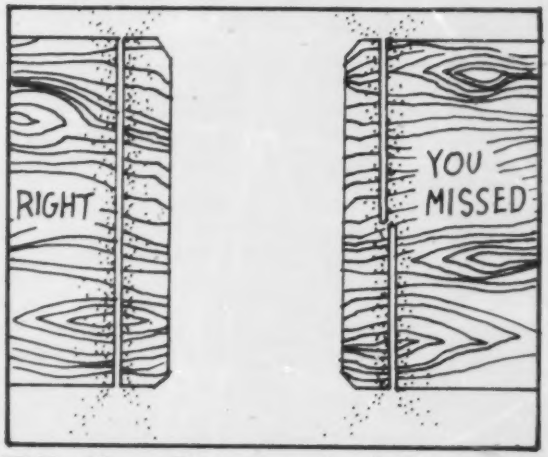
STEP 9 – Turn the box over so that you can saw the other side of the lid.



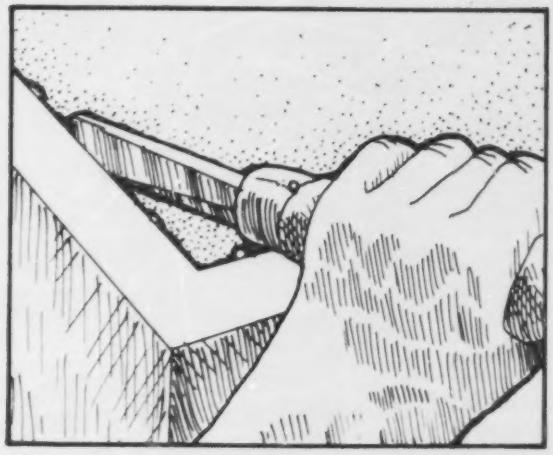
STEP 10 – Place the saw teeth directly over marking gauge line.



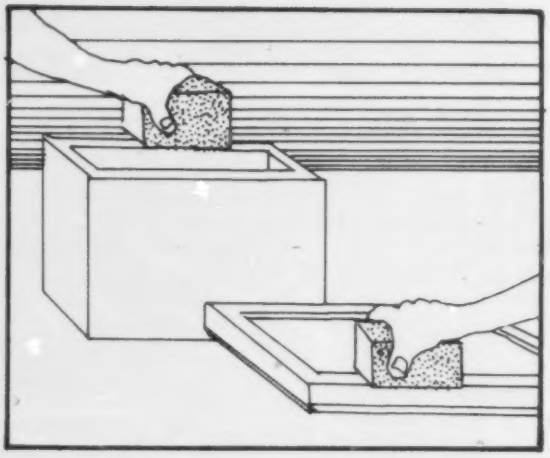
STEP 11 – Saw through the box until meeting the other side. FOLLOW THE MARKING GAUGE LINES.



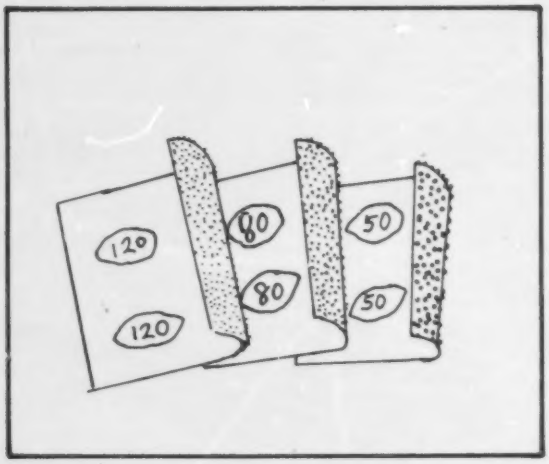
STEP 12 – The saw kerfs should match EXACTLY.



STEP 13 – Chip away any excess glue on the inside with a chisel. Be careful not to scratch your box or cut anyone.



STEP 14 – Sand around ALL of the edges you just cut.



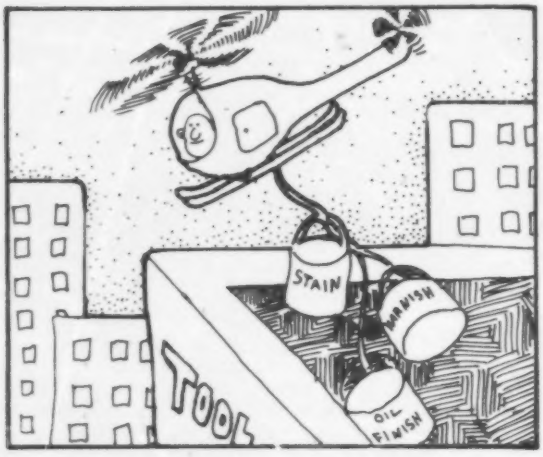
STEP 15 – Use the same procedure that you used to sand the rest of the board. Also, do any touch-up sanding. Your box should have a SMOOTH texture before you apply a stain or finish.

Check Point

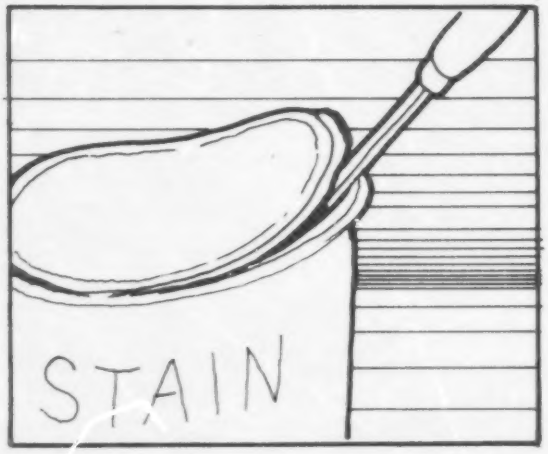
Show your instructor your box before you go any further. There may be other things you should do to your box before you apply the stain and finish. The instructor can help detect what you may have missed.

Instructional Objective XV

The student will be able to distinguish between a stain, varnish, and oil, and apply the proper finish to the box.



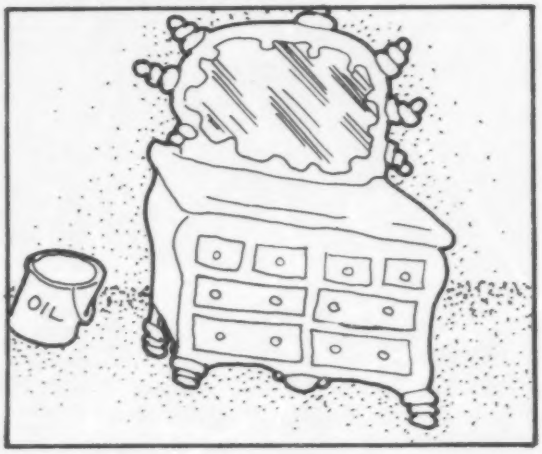
STEP 1 – Take the cans marked stain(s), varnish, and oil finish from your supplies.



STEP 2 – Carefully open the stain(s). NOTE: A stain adds color to the surface to accent the grain pattern. If you have more than 1 color stain, choose the stain you like best. Close the other stain(s) and return them to the designated place.

STEP 3 – Open the varnish and oil finishes. Notice both are liquid.

STEP 4 – The varnish is applied with a brush and is of a resin mixed material; protects from scratches better than oil.



STEP 5 – The oil is a hand-rubbed finish that seeps into the wood, giving it a protective coating. It is used on objects of decorative value.

Check Point

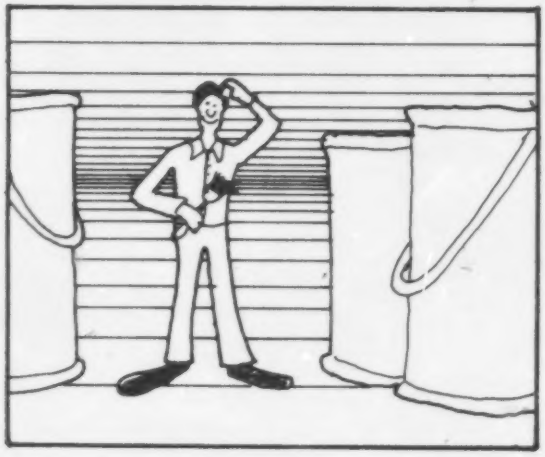
Turn in your WORKBOOK to Checkpoint No. 15.

Close this manual and answer all the questions.

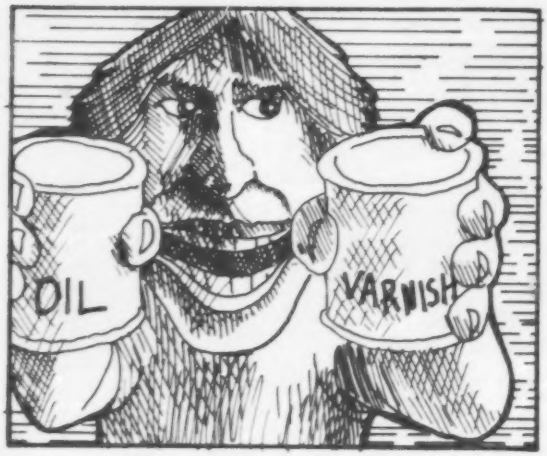
Check your answers with this manual.

If you missed one or more answers, start over at one and take the checkpoint again.

If you have all answers correct, continue on to STEP 6.

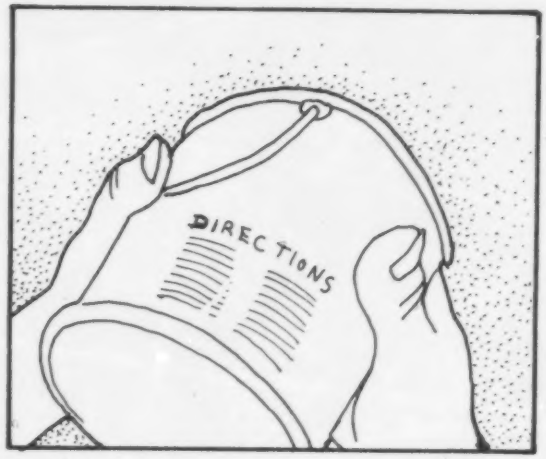


STEP 6 – Choose the finish you wish to apply (varnish or oil). Remember – varnish is more durable.

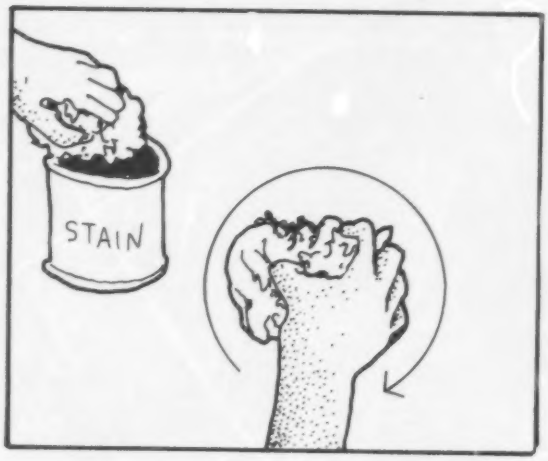


STEP 7 – Return the other finish to the designated place after you close the lid tightly.

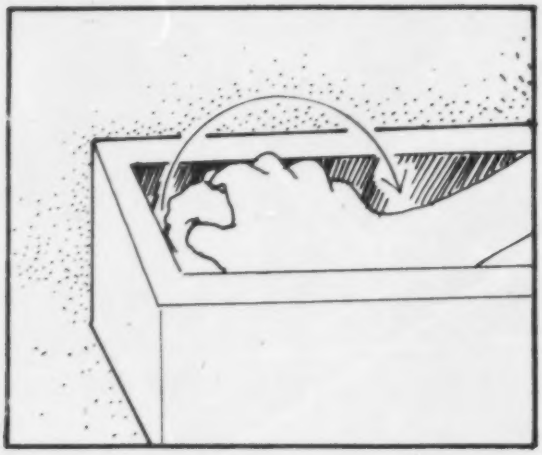
STEP 8 – Take a rag from your supplies.



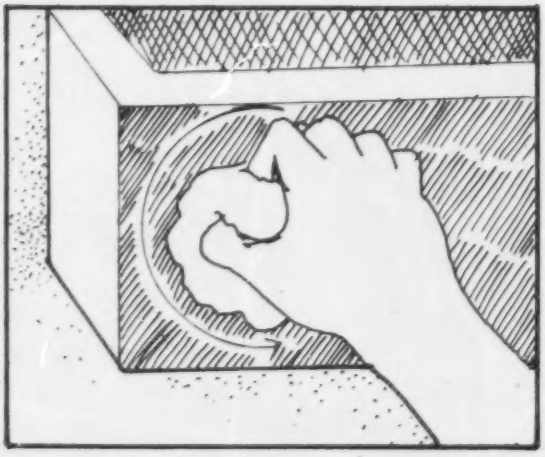
STEP 9 – Read the directions on the stain.



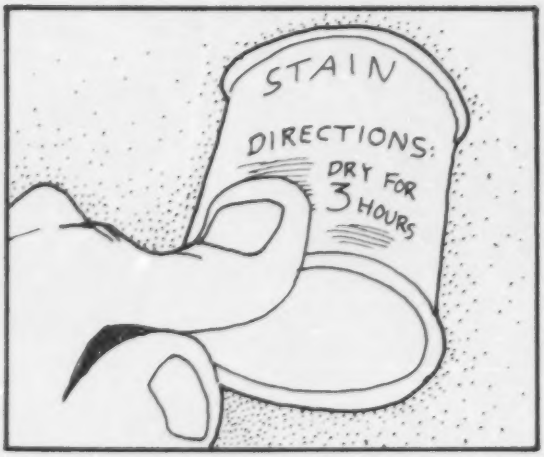
STEP 10 – Using a rag and following directions on can, apply the stain to your box. Use a circular type motion.



STEP 11 – Do the inside first.



STEP 12 – Be sure to wipe off all excess stain.



STEP 13 – Allow stain to dry for time allotted on can (see can directions).

STEP 14 – Any clean-up can be done with soap and water.

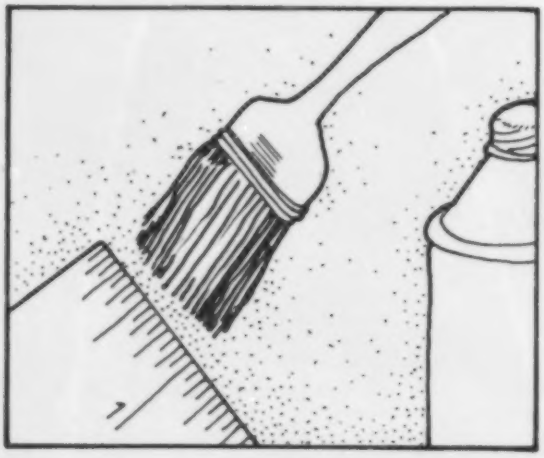
Check Point

Consult your instructor to be sure that materials are dry enough.

Instructional Objective XVI

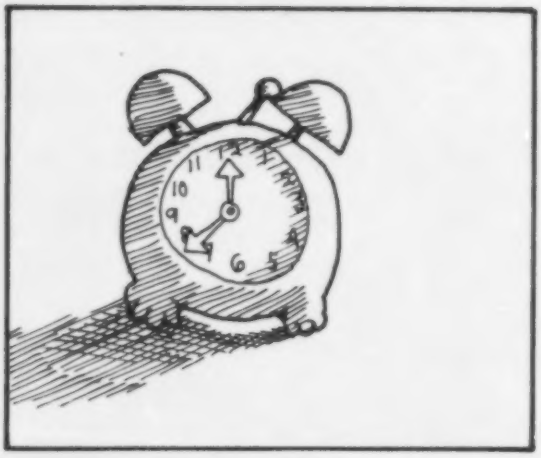
When stain is completely dry, the student will apply finish, either a varnish or oil.

VARNISH



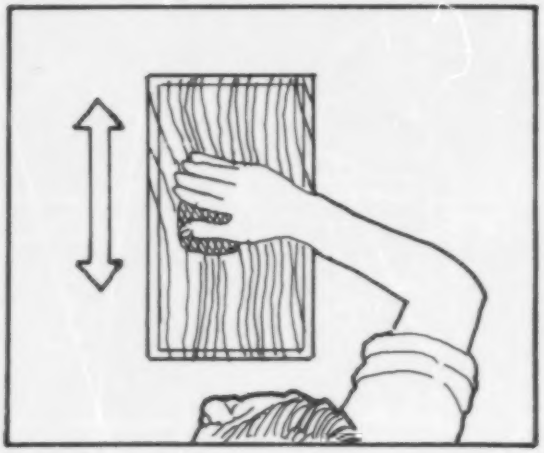
STEP 1 – Use the 1" (2.54 cm) paint brush provided. To clean the brush, use the solvent supplied by your instructor.

STEP 2 – Read directions on varnish can. For an even coat, apply 1 coat. Brush either up and down or back and forth, but DON'T combine. Do inside first. You may have to open the box and apply a coat; then when dry, close the box and apply varnish where you couldn't reach when box was open.



STEP 3 – Allow to dry for allotted time on can.

STEP 4 – In between coats, use the steel wool to lightly "sand" the varnish when it is dry before applying the next coat.



STEP 5 – Use steel wool in direction of grain.

STEP 6 – Apply no more than 3 coats of varnish.

STEP 7 – Pour a VERY small amount of turpentine into a can.

STEP 8 – Swish the bristles around in the turpentine (up and down and sideways).

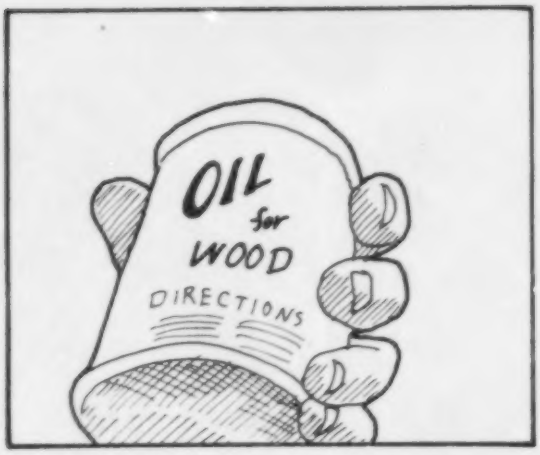
STEP 9 – See if the brush is clean of varnish, if not go back to Step 8.

STEP 10 – Use a rag to wipe any excess turpentine from the brush.

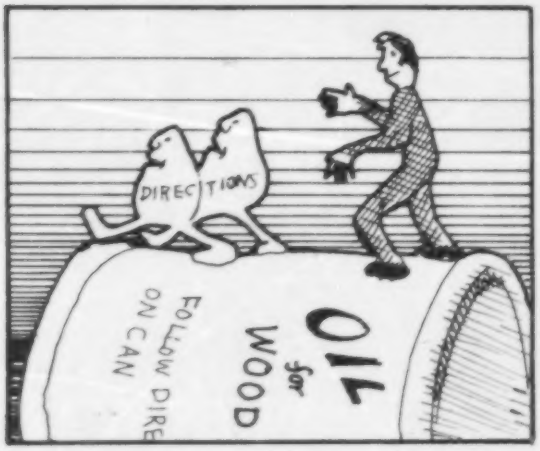
STEP 11 – See your instructor about disposing of the turpentine.

Check Point

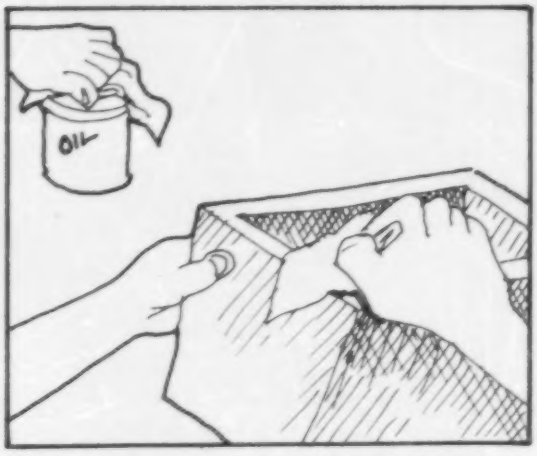
Have your instructor check your brush to see that it is clean.



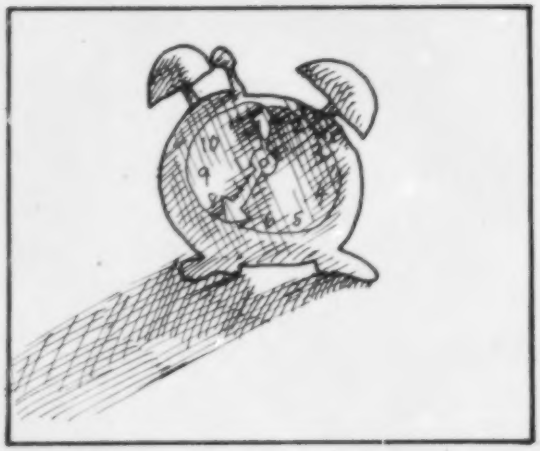
STEP 1 – Read directions on the can.



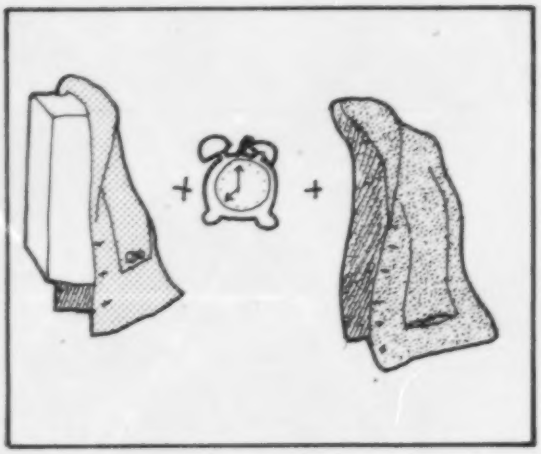
STEP 2 – Follow directions on the can.



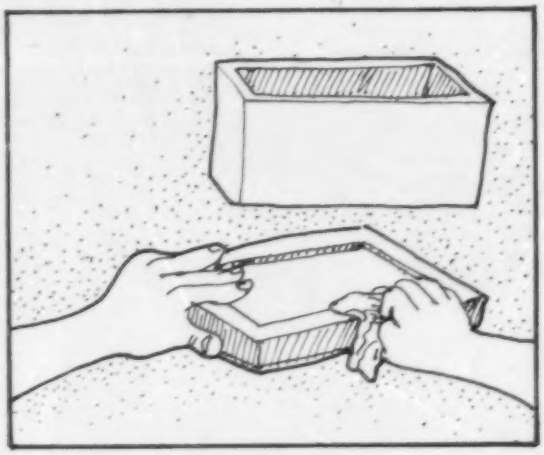
STEP 3 – Rub the oil well into the wood.



STEP 4 – Allow to dry for allotted time.

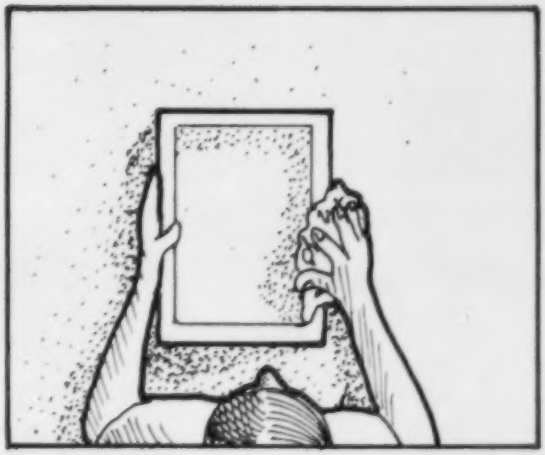


STEP 5 – Apply 1 or 2 more coats (allowing time between coats).



STEP 6 – Rub each coat into the board well.

64



STEP 7 – Be sure to wipe off any excess oil. This finish is not to be seen as distinctly as a varnish. It is more subdued.

Check Point

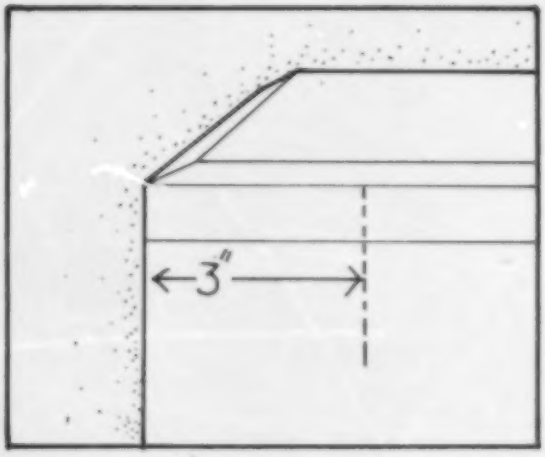
Is your finish as you desire?

ATTACHING HINGES AND HASPS

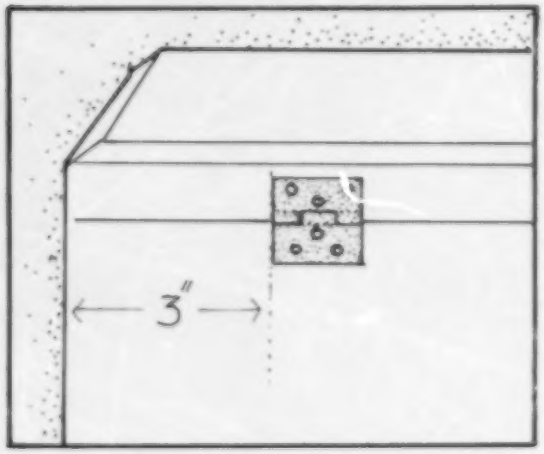
Instructional Objective XVII

The student will attach hasps and hinges to box, after marking where to attach them and being given proper instruction on how to attach them.

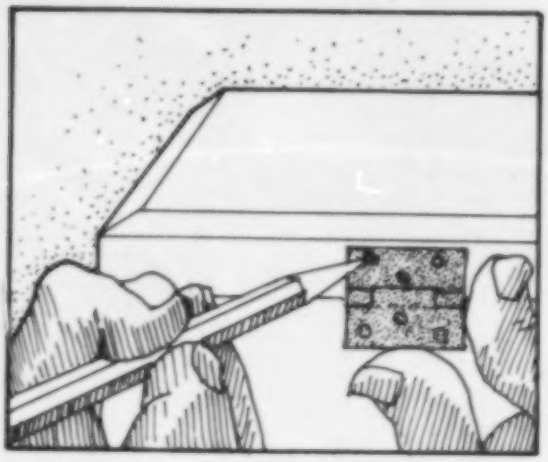
HINGES



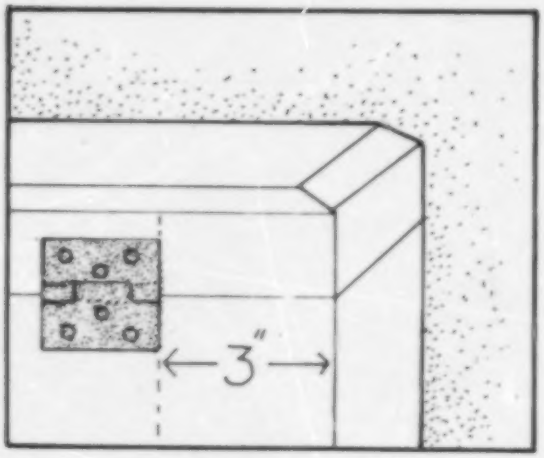
STEP 1 – Measure 3" (7.62 cm) in from both ends of your box on the back. Draw a thin line with your pencil on the lid and bottom of box (about 1" (2.54 cm) long.)



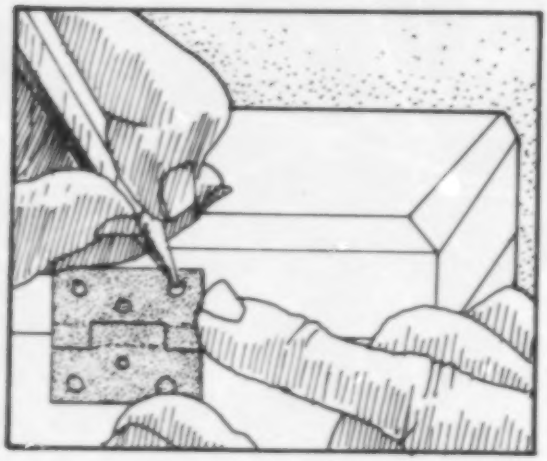
STEP 2 – Put the left edge of your hinge on this line with the round part along the cutting line between the top and bottom of box.



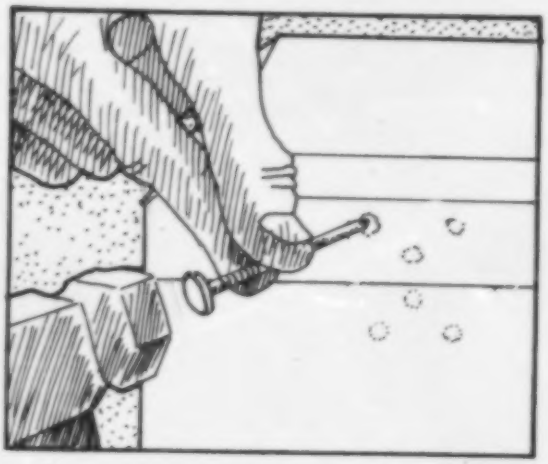
STEP 3 – Mark each hole with your pencil.



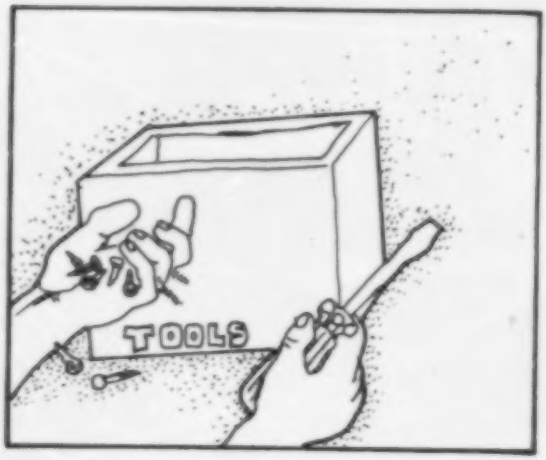
STEP 4 – Do the same for the other hinge, except the right side of the hinge is on the 3" (7.62 cm) line.



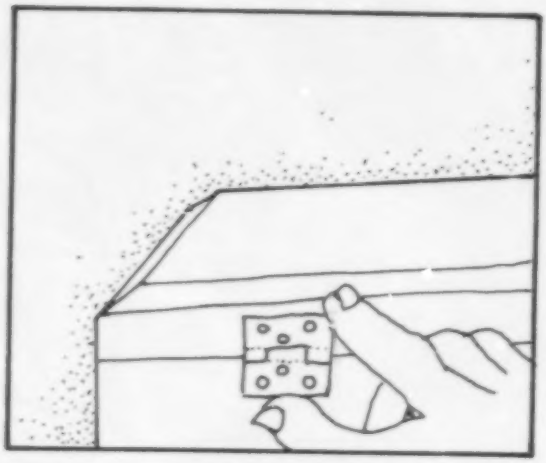
STEP 5 – Mark the holes with pencil. Remove hinge.



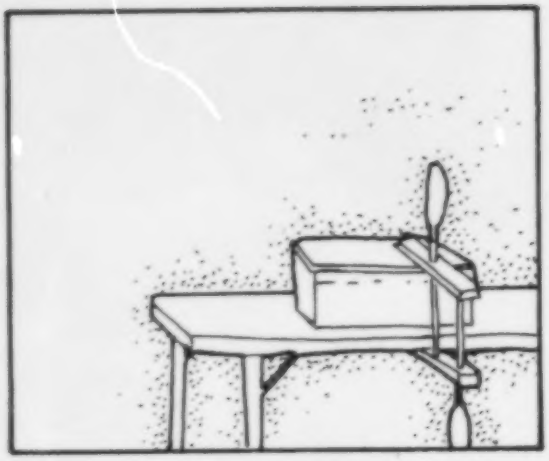
STEP 6 – Using a small hammer and a nail, hammer a small hole in the center of each of the circles you just marked. (not deep).



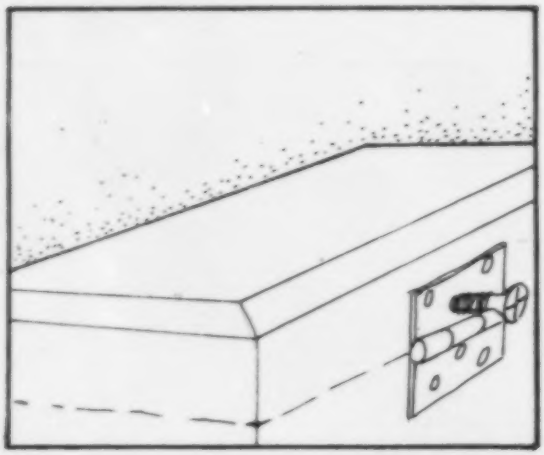
STEP 7 – Locate the screws and screwdriver.



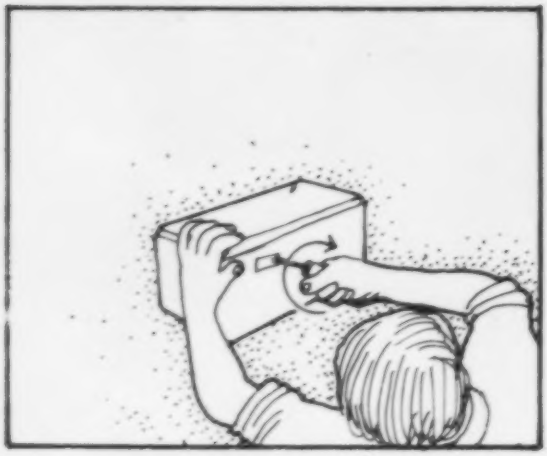
STEP 8 – Put one of the hinges back in place.



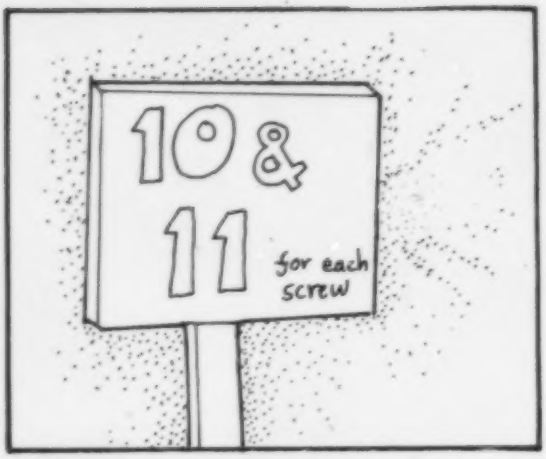
STEP 9 – Secure the box in clamps (to hold it steady) if necessary.



STEP 10 – Put a screw in one of the holes, which will allow it to hold the hinge on.



STEP 11 – Hold the screw perpendicular (90° on all sides) to the board. Apply pressure downward and with screwdriver in slot of the screw, turn CLOCKWISE.



STEP 12 – Repeat steps 10 and 11 for each screw and for other hinges.

Check Point

Are all hinges secure? Check each screw to see that it is down flat.

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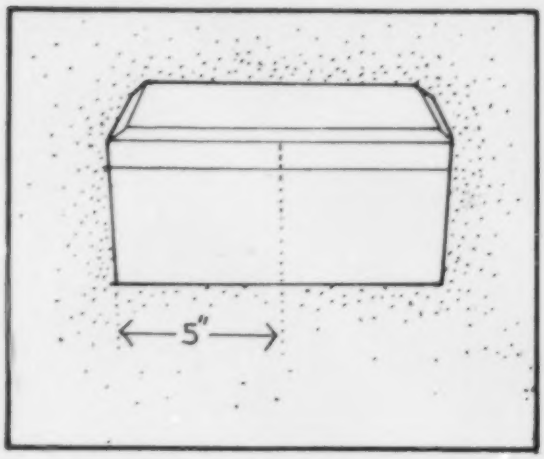
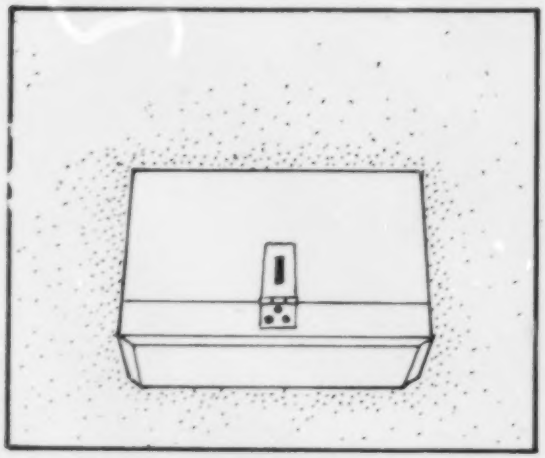
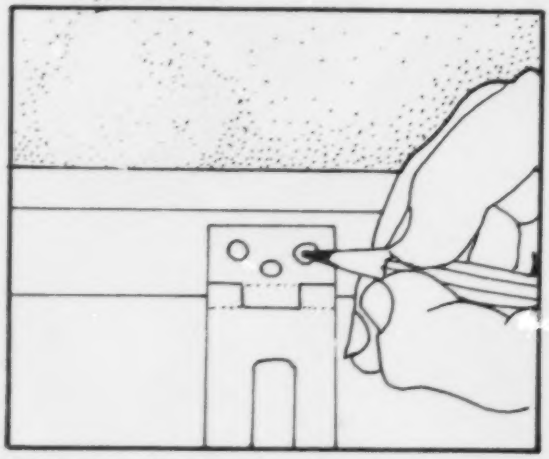
HASP



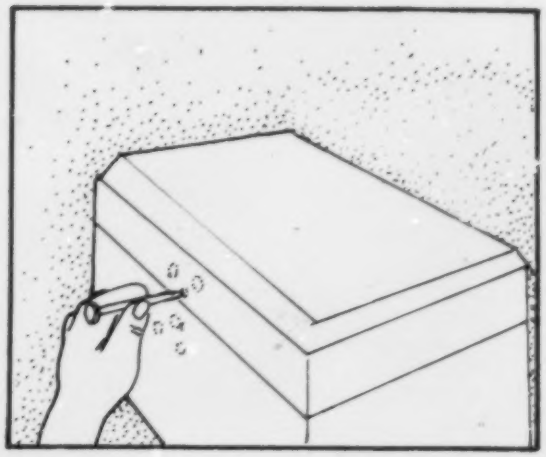
STEP 1 – Draw a line with your pencil at ½ the distance of the length of the box. This should be 5" (12.7 cm) -- on the side opposite your hinges.



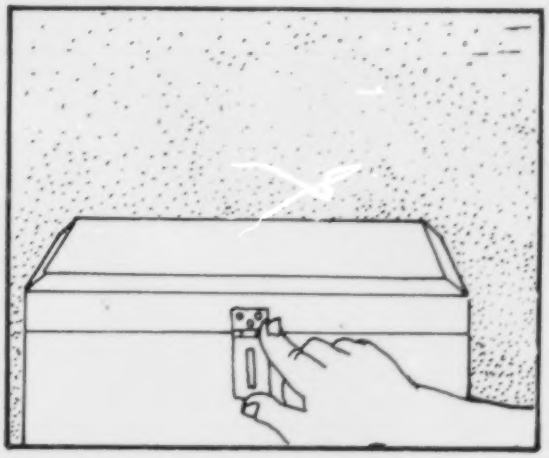
STEP 2 – Place the center of the hasp along the line just drawn.



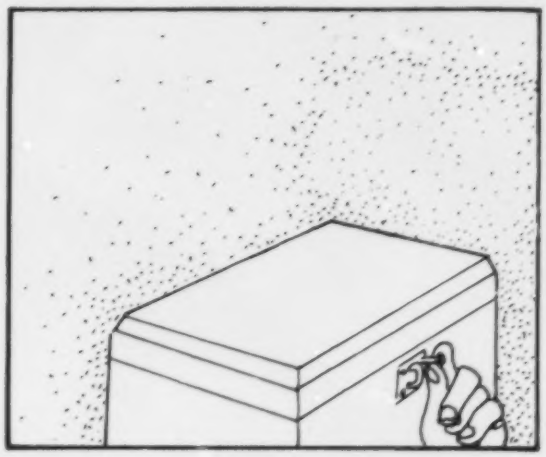
STEP 3 – Mark holes for screws, remove hasp.



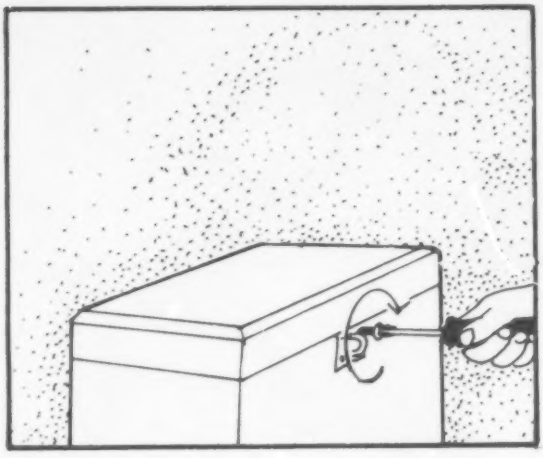
STEP 4 – Using hammer and a nail, make a small hole (not deep) in the center of the circles just drawn.



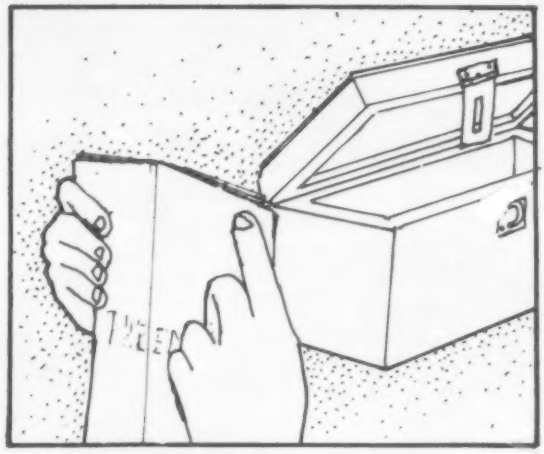
STEP 5 – Put hasp back in place.



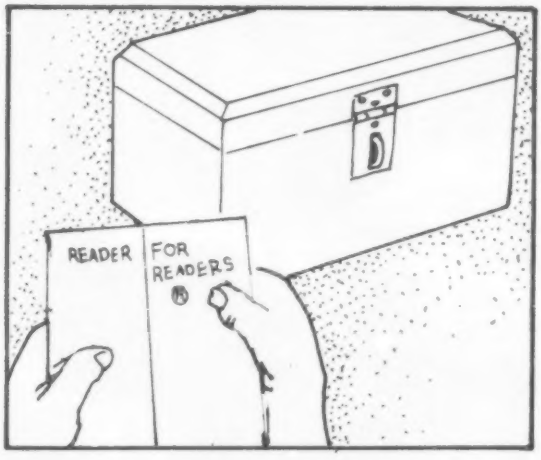
STEP 6 – Using the same directions as when you applied your hinges, apply the hasp.



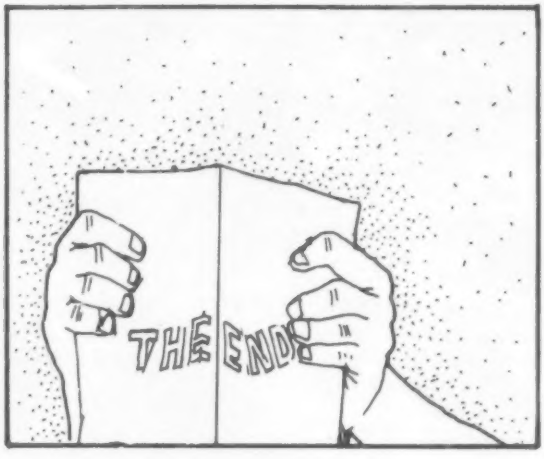
STEP 7 – Screw the screws in clockwise.

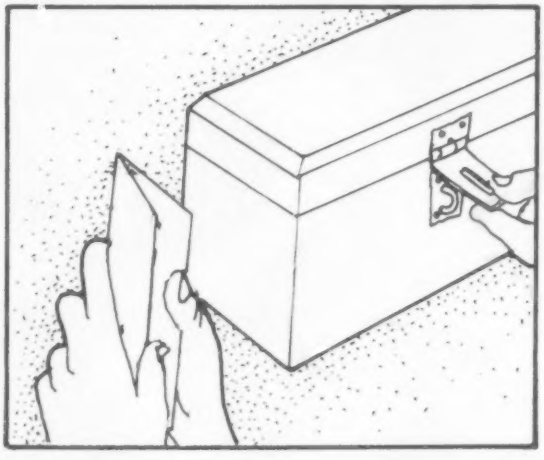


STEP 10 – Open and close your box to check hinges.



STEP 8 – Be sure you have applied both halves of the hasp.





STEP 9 – Open and close the hasp to make sure it works.

Check Point

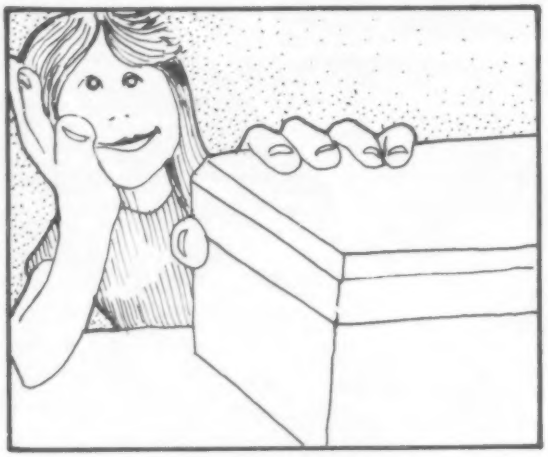
Check the opening and closing of your box again. Have your instructor check your work for completeness. If your work is satisfactory, continue.

AT THIS POINT, THE INSTRUCTOR MAY HAVE THE STUDENT DO A WRITTEN OR ORAL REPORT ON THE ACTIVITY (instructions to the student for this follow) OR THE INSTRUCTOR MAY ASK FOR THE WORKBOOK, WOODEN BOX, AND WORK RECORD CHART TO BE HANDED IN--OR THE INSTRUCTOR MAY WISH TO INSPECT AND GRADE THE BOX AND TAKE UP THE WRITTEN MATERIAL ONLY.

REPORT ON ACTIVITY

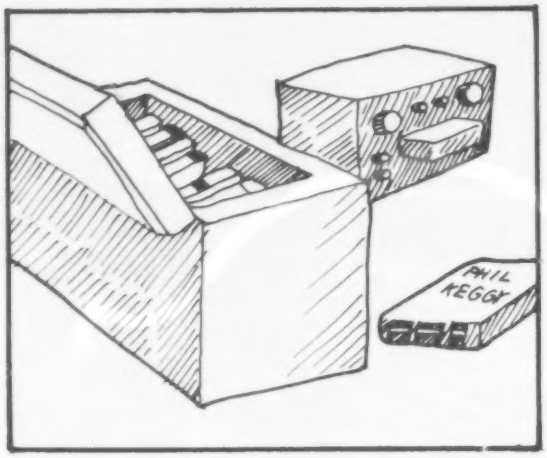
Instructional Objective XVIII

Following the necessary instructions, the student will compile a report.



STEP 1 – Do not do this step until all objectives have been passed and you have completed your box.

STEP 2 – Your report may be either oral or written. (Instructor will inform you.)



STEP 3 – In your report include:

a. Your favorite and non-favorite part of this activity if your job was on an assembly line, and you had one (and only one) phase of the construction to do over and over all day.
b. Your favorite and non-favorite aspects in constructing the box
c. What you will use your box for now that it is completed.
d. Entire time spent on project

Check Point

TURN IN WORKBOOK, WOODEN BOX, AND WORK RECORD SHEET TO YOUR INSTRUCTOR (ALSO, YOUR REPORT IF IT IS WRITTEN).

OCCUPATIONAL DESCRIPTIONS

Carpenter (const.) 860.381. Constructs, erects, installs, and repairs structures and fixtures of wood, plywood, and wall board, using carpenter's handtools and power tools, and conforming to local building codes: Studies blueprints, sketches, or building plans, for information pertaining to type of material required, such as lumber or fiberboard, and dimensions of structure or fixture to be fabricated. Selects specified type of lumber or other materials. Prepares layout, using rule, framing square, and calipers. Marks cutting and assembly lines on materials, using pencil, chalk, and marking gage. Shapes materials to prescribed measurements, using saws, chisels, and planes. Assembles cut and shaped materials and fastens them together with nails, dowel pins, or glue. Verifies trueness of structure with plumb bob and carpenter's level. Erects framework for structures and lays subflooring. Builds stairs and lays out and installs partitions and cabinet work. Covers subfloor with building paper to keep out moisture and lays hardwood, parquet, and wood-strip-block floors by nailing floors to subfloor or cementing them to mastic or asphalt base. Applies shock-absorbing, sound-deadening, and decorative paneling to ceilings and walls. Fits and installs prefabricated window frames, doors, door frames, weather stripping, interior and exterior trim, and finish hardware, such as locks, letter drops, and kick plates. Constructs concrete forms and pouring chutes. Erects scaffolding and ladders for assembling structures above ground level. May weld metal parts to steel structural members. When specializing in particular phase of carpentry, is designated according to specialty as LAYOUT CARPENTER; PARQUETRY-FLOOR LAYER. When specializing in finish carpentry, such as installing interior and exterior trim, building stairs, and laying hardwood floors, is designated FINISH CARPENTER. When erecting frame buildings and performing general carpentry work in residential construction, is designated FRAMING CARPENTER; HOUSE CARPENTER. May perform carpentry work in construction of walk-in freezers and environmental test chambers and be designated CARPENTER, REFRIGERATOR (refrigerat. equip.).

660.130-010 CABINETMAKER, SUPERVISOR (woodworking)

Supervises and coordinates activities of CABINETMAKERS (woodworking) engaged in constructing and repairing wooden cabinets and high-grade furniture, performing duties as described under SUPERVISOR (any ind.).

660.280-010 CABINETMAKER (woodworking)

Sets up and operates variety of woodworking machines and uses various handtools to fabricate and repair wooden cabinets and high-grade furniture: Studies blueprints or drawings of articles to be constructed or repaired, and plans sequence of cutting or shaping operations to be performed. Marks outline or dimensions of parts on paper or lumber stock, according to blueprint or drawing specifications. Matches materials for color, grain, or texture. Sets up and operates woodworking machines, such as power saws, jointer, mortiser, tenoner, molder, and shaper, to cut and shape parts from woodstock. Trims component parts of joints to insure snug fit, using handtools, such as planes, chisels, or wood files. Bores holes for insertion of screws or dowels by hand or using boring machine. Glues, fits and clamps parts and subassemblies together to form complete unit, using clamps or clamping machine. Drives nails or other fasteners into joints at designated places to reinforce joints. Sands and scrapes surfaces and joints of articles to prepare articles for finishing. May repair high-grade articles of furniture. May dip, brush, or spray assemblied articles with protective or decorative materials, such as stain, barnish, or paint. May install hardware, such as hinges, catches, and drawer pulls. May repair furniture, equipment, and fixtures and be designated as CABINETMAKER, MAINTENANCE (woodworking). May be designated according to products made as PIANO-CASE MAKER (musical inst.). May cut, shape, and assemble wooden parts to construct frames for refrigeration equipment and be designated as REFRIGERATOR CABINETMAKER (refrigerat. equip.).

660.280-014 CABINETMAKER APPRENTICE (woodworking)

Performs duties as described under APPRENTICE (any ind.).

840.381-010 PAINTER (const.)

Applies coats of paint, varnish, stain, enamel, or lacquer to decorate and protect interior or exterior surfaces, trimmings, and fixtures of buildings, and other structures: Smooths surfaces, using sandpaper, brushes, or steel wool and removes old paint from surfaces, using paint remover, scraper, wire brush, or blowtorch to prepare surfaces for painting. Fills nail holes, cracks, and joints with putty, plaster, or other filler. Selects premixed paints, or mixes required portions of pigment, oil, and thinning and drying substances to prepare paint that matches specified colors. Paints surfaces, using brushes, spray gun, or paint rollers. Simulates wood grain, marble, brick, or tile effects. Applies paint with cloth, brush, sponge, or fingers to create special effects. Erects scaffolding or sets up ladders to perform tasks above ground level. May be designated according to type of work performed as PAINTER, INTERIOR FINISH (const.); PAINTER, MAINTENANCE (any ind.); or according to type of material used as CALCIMINER (const.); VARNISHER (const.). May also hang wallpaper and fabrics [PAPERHANGER (const.)].

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